OREGON CITY TRANSPORTATION PLAN

2013

Oregon City Transportation System Plan

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VOLUME I

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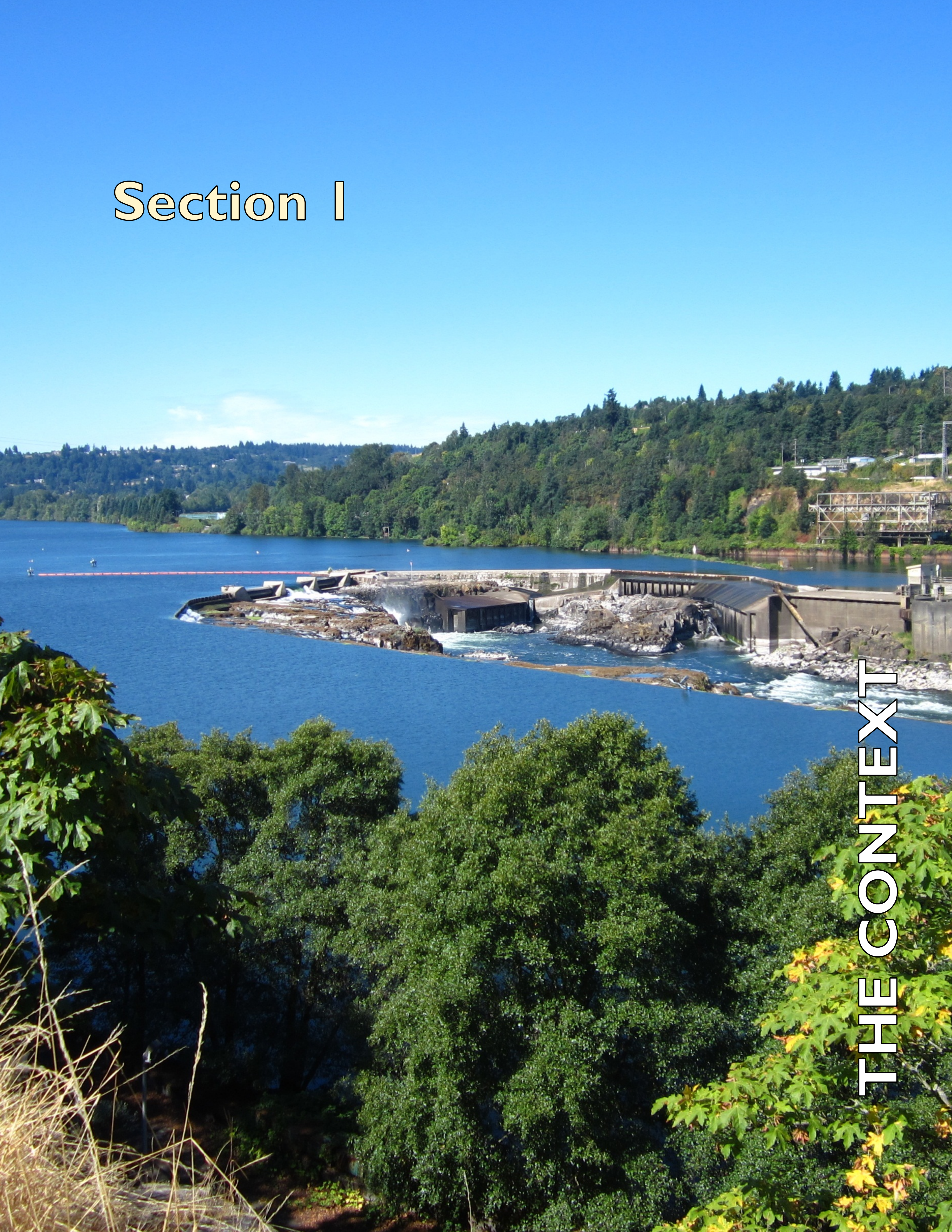
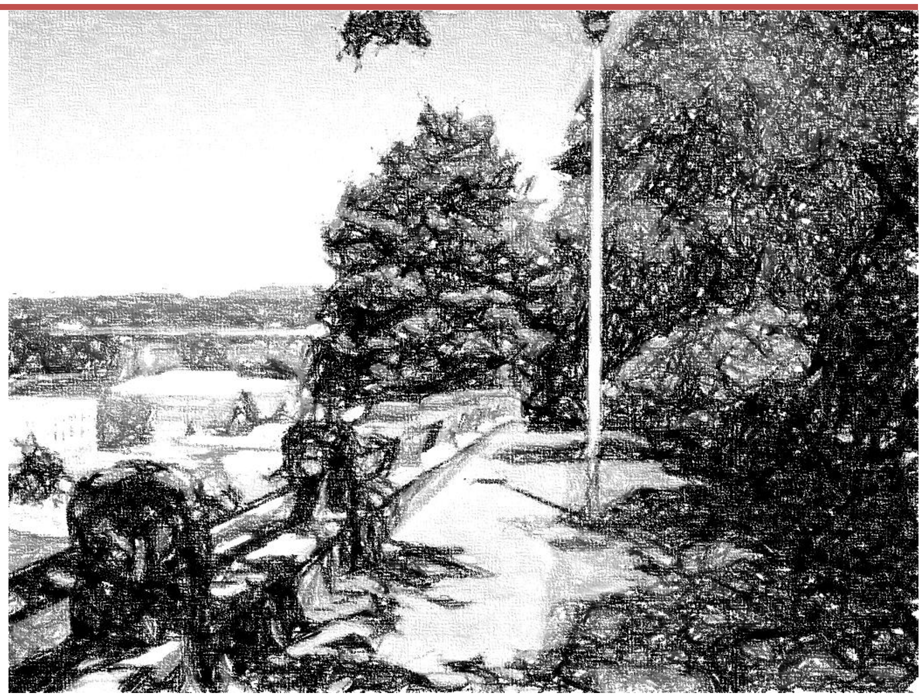
THE CONTEXT



the context



Located along the shores of the Willamette and Clackamas Rivers near the scenic Willamette Falls, Oregon City is the oldest incorporated City west of the Rockies. With a population of around 34,000, the City is characterized by topography that rises sharply from the riverfront and downtown to reach 250 feet, above the Willamette River. The two to three blocks wide downtown is located at the base of a basalt bluff where the McLoughlin Conservation District is found, one of two of the City's historic neighborhoods. At higher elevations and further south from downtown, newer neighborhoods and commercial development has developed over the past 50 years. The City is now comprised of 12 unique neighborhoods as illustrated by the Neighborhood Associations (see Figure in the TSP Volume 2, Section D).

In recent years, the City has made great strides at investing in the Downtown and the 7th Street-Molalla Avenue corridor and becoming a regional destination for employment, shopping and education. These characteristics make Oregon City unique, as well as define the key transportation issues that the City seeks to overcome.

The Challenge

Oregon City, like many jurisdictions, faces the challenge of accommodating population and employment growth while keeping acceptable service levels on its transportation network. Moreover, the City must also balance its investments to ensure that the existing transportation system adequately serves all members of the community and is well maintained.

The Transportation System Plan

Oregon City is aware of these challenges and strives to keep the City's Transportation System Plan (TSP) up to date in an effort to prepare for and accommodate the future growth within the Urban Growth Boundary (UGB) in the most efficient manner possible. Without the big picture that the TSP provides, maintaining acceptable transportation network performance could not be achieved in an efficient manner.

What is a TSP?

The TSP provides a long term guide for City transportation investments by incorporating the vision of the community into an equitable and efficient transportation system.

The plan evaluates the current transportation system and outlines policies and projects that are important to protecting and enhancing the quality of life in Oregon City through 2035. Plan elements can be implemented by the City, private developers, and state or federal agencies.

A TSP is required by the State of Oregon, to help integrate our plans into the statewide transportation system. The plan balances the needs of walking, bicycling, driving, transit and freight into an equitable and efficient transportation system. The TSP can also be a tool for reflecting community values and protecting what makes Oregon City a great place to call home, do business, and visit.

The TSP provides a long term guide for City transportation investments.

Section 2

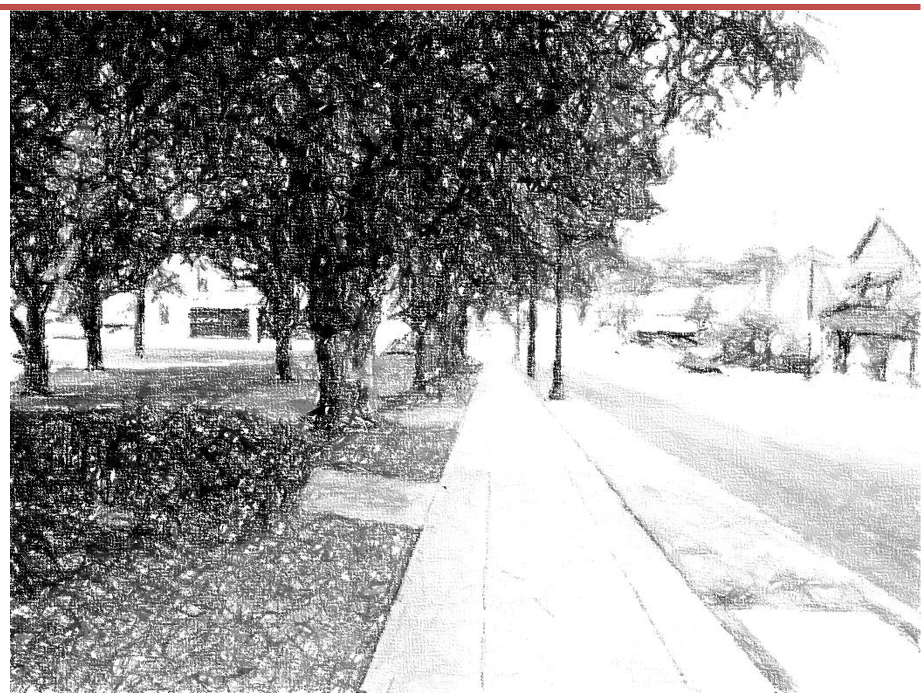
THE VISION

the vision

Oregon City understands that transportation funding is limited and recognizes the importance in being fiscally responsibility in its approach to enhancing the transportation system. In the past, a typical response to congestion was to expand streets, creating significant barriers to walking and biking and detracting from the livability, health, safety and fiscal wellbeing of the community.

The Oregon City approach for the update placed more value on investments in smaller cost-effective solutions for the transportation system rather than larger, more costly ones where practical. The approach, as required by the Metro Regional Transportation Functional Plan, identified solutions to accommodate future travel demand by following a five-step process, as shown in Figure 1, that considered solutions from top to bottom until a viable solution was identified.

Taking a multi-modal network-wide approach to identifying transportation system solutions, the projects fall within one of five categories (see Figure 1). This enabled more cost-effective



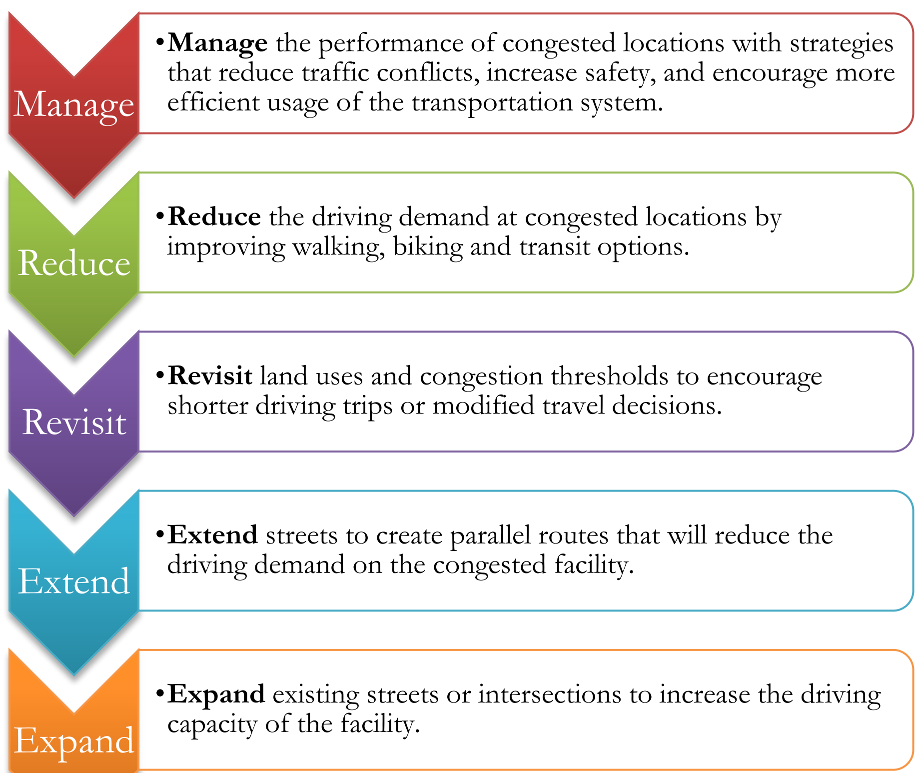


Figure 1: Transportation Solutions Identification Process

solutions to increase transportation system capacity and helped to encourage multiple travel options, increase street connectivity and promote a more sustainable transportation system.

How do we reflect our Vision in the Plan?

The eight transportation goals for the Plan respond to this vision and were used to set direction for the future and evaluate transportation programs and projects needed to maintain the system, improve system efficiency and strategically expand the system.

Each solution was evaluated to see how the transportation goals match the perceived project benefits and shortfalls. A variety of transportation evaluation criteria and measures were derived from project goals and objectives and used to evaluate and compare the solutions to one another.

Project stakeholders were given the opportunity to rank the eight project goals, from most valuable to least valuable. Using the weighted goals, the transportation solutions were evaluated and compared to one another, placing more value on those project stakeholders felt were most important to the community. The following goals (listed in order of importance to the community), were utilized to assess the performance of the transportation solutions:

- Enhance the health and safety of residents
- Emphasize effective and efficient management of the transportation system
- Foster a sustainable transportation system
- Provide an equitable, balanced and connected multi-modal transportation system
- Identify solutions and funding to meet system needs
- Increase the convenience and availability of pedestrian, bicycle, and transit modes
- Ensure the transportation system supports a prosperous and competitive economy
- Comply with state and regional transportation plans

Each transportation solution was assigned a time frame for the expected investment need, based on a project‘s contribution to achieving the transportation goals of Oregon City. The investment recommendations attempted to balance implementation considerations. Complex and costly capital projects were disfavored compared with implementation of low cost projects that can have more immediate impacts and can spread investment benefits citywide.

Figure 2: Reflecting our vision in the Plan

"Health and Safety"

Objectives

Objective A. Identify improvements to address high collision locations

Objective B. Identify necessary changes to street design guidelines to support context sensitive design solutions

Objective C. Reduce impervious street surfaces through "Green Streets"

Objective D. Provide a network of family-friendly walking and biking routes

Goal 1. Enhance the health and safety of residents

Ensure that the transportation system maintains and improves individual health, safety and security by maximizing the comfort and convenience of walking, biking and transit transportation options, public safety and service access.

Evaluation Criteria

- Improves safety of the transportation system
- Encourages active living and physical activity
- Minimizes transportation related pollution

“Effective and efficient”

Goal 2. Emphasize effective and efficient management of the transportation system

Optimize travel capacity and improve travel conditions by better managing our own travel demands, meeting more of our daily needs within our own community, making our existing transportation facilities as smart and efficient as possible, and being strategic about transportation investments. The City should seek to find innovations and fine tuning of existing systems and policies and avoid or forestall costly major roadway capacity improvements.

Evaluation Criteria

- Reduces need for major highway project construction
- Implements Transportation Demand Management (TDM) or other strategies to create greater mobility, reduce auto trips, make more efficient use of the roadway system, and minimize air pollution
- Improvement makes daily traffic capacity more reliable
- Enhances travel for local trips off the state highway system

Objectives

Objective A. Identify opportunities to reduce the use of state facilities and arterials for local trips

Objective B. Seek to shift vehicle travel to off-peak periods

Objective C. Maintain the existing transportation system assets.

Objective D. Identify opportunities to improve travel reliability and safety with TSMO solutions

"Sustainable"

Objectives

Objective A. Support alternative vehicle types by identifying potential electric vehicle plug-in stations and developing implementing code provisions

Objective B. Identify existing and future expected VMT levels within the City of Oregon City, and consider opportunities and actions needed to meet RTP targets

Objective C. Encourage alternatives to daily single-occupancy vehicle commuting.

Objective D. Develop and support alternative mobility standards on state facilities and City streets where necessary

Objective E. Identify areas where alternative land use types would significantly shorten trip lengths or reduce the need for motor vehicle travel within the city

Objective F. Minimize impacts to the natural environment.

Goal 3. Foster a sustainable transportation system

A key approach to building a sustainable community requires a transportation system that is environmentally and fiscally sustainable that focuses on decreasing vehicle emissions and transportation related greenhouse gas emissions.

Evaluation Criteria

- Emphasizes the movement of people over vehicles, which reduces the citywide vehicle-miles-travelled (VMT)
- Minimizes impact to the natural environment
- Supports alternative land use types

Equitable, balanced and connected”

Goal 4. Provide an equitable, balanced and connected multi-modal transportation system

Provide a "complete" transportation system throughout Oregon City that provides travel options and connects people to jobs, schools, services, recreation, social and cultural institutions within the City.

Evaluation Criteria

- Improves access to underserved or vulnerable populations
- Reduces total transportation and housing costs
- Connection enhances system efficiency
- Connection or improvement satisfies multiple objectives

Objectives

Objective A. Ensure that the transportation system provides equitable access to underserved and vulnerable populations

Objective B. Reduce total housing and transportation costs for residents

Objective C. Identify new or improved system connections to enhance system efficiency

Objective D. Give priority to connections that help to advance other goal areas

Objective E. Assure the Oregon City Municipal Code supports a balanced and connected multi-modal transportation system.

“Fundable”

Objectives

Objective A. Identify stable revenue sources for transportation investments to meet the needs of the City, as documented in the updated TSP.

Objective B. Consider costs and benefits when identifying project solutions and prioritizing public investments.

Objective C. Identify new funding sources to leverage high priority transportation projects.

Goal 5. Identify solutions and funding to meet system needs

The City will identify transportation investments that can be made with available funding to ensure that system needs can be delivered for growth planned within the community.

Evaluation Criteria

- Available funding sources exist to implement projects in a timely fashion
- Assumed project benefits exceed project costs

“Convenient and available”

Goal 6. Increase the convenience and availability of pedestrian, bicycle, and transit modes

Strengthen the pedestrian and bicycle systems in all areas of the city. In addition, identify areas that have existing or future transit-supportive densities and amenities and work with local transit providers such as TriMet, Canby Area Transit (CAT), South Clackamas Transportation District (SCTD), etc. to cost-effectively improve coverage and frequency to achieve greater ridership productivity.

Evaluation Criteria

- Adds bikeway and walkways that fill in system gaps, improve system connectivity, and are accessible to all users
- Improves access to transit facilities. Promotes transit as a viable alternative to the single occupant vehicle
- Improves the basic provision of services to encourage higher levels of usage for walking and biking trips

Objectives

Objective A. Identify projects to close gaps and address deficiencies in the pedestrian and bicycle system

Objective B. Provide safe, comfortable and convenient transportation options

Objective C. Identify necessary changes to land development code to ensure connectivity between compatible land uses for pedestrian and bicycle trips

Objective D. Identify areas that support additional transit services, and coordinate with transit providers to improve the coverage, quality and frequency of services

Objective E. Consider the potential access needs for candidate High Capacity Transit and frequent service bus routes

“Prosperity”

Objectives

Objective A. Freight access and truck travel reliability

Objective B. Increase the distribution of travel information to maximize the reliability and effectiveness of existing major roadway facilities

Objective C. Reinforce growth and multi-modal access to 2040 Target Areas

Objective D. Seek to advance travel strategies that are identified in the Metro Regional Mobility Corridors

Goal 7. Ensure the transportation system supports a prosperous and competitive economy

Support a prosperous and competitive economy by preserving and enhancing business opportunities, and ensuring the efficient movement of people and goods.

Evaluation Criteria

- Improves freight access/connectivity
- Implements strategies to provide stable and reliable auto and truck traffic flows on major facilities
- Improves access in the Metro 2040 Target Areas

“Compliant”

Goal 8. Comply with state and regional transportation plans

The City will meet the requirements of the Oregon Transportation Planning Rule, the Oregon Highway Plan, and the Metro 2035 Regional Transportation Plan (RTP) and Regional Functional Transportation Plan (RFTP).

Evaluation Criteria

- Compatible with other jurisdiction’s plans and policies, (including adjacent cities, counties, Metro or ODOT)
- Consistent with the standards of the City, Region, and State as a whole.

Objectives

Objective A. Meet the mobility standards for state highways, or develop and propose alternative standards, consistent with Oregon Highway Plan provisions.

Objective B. Develop TSP policy and municipal code language to implement the TSP update.

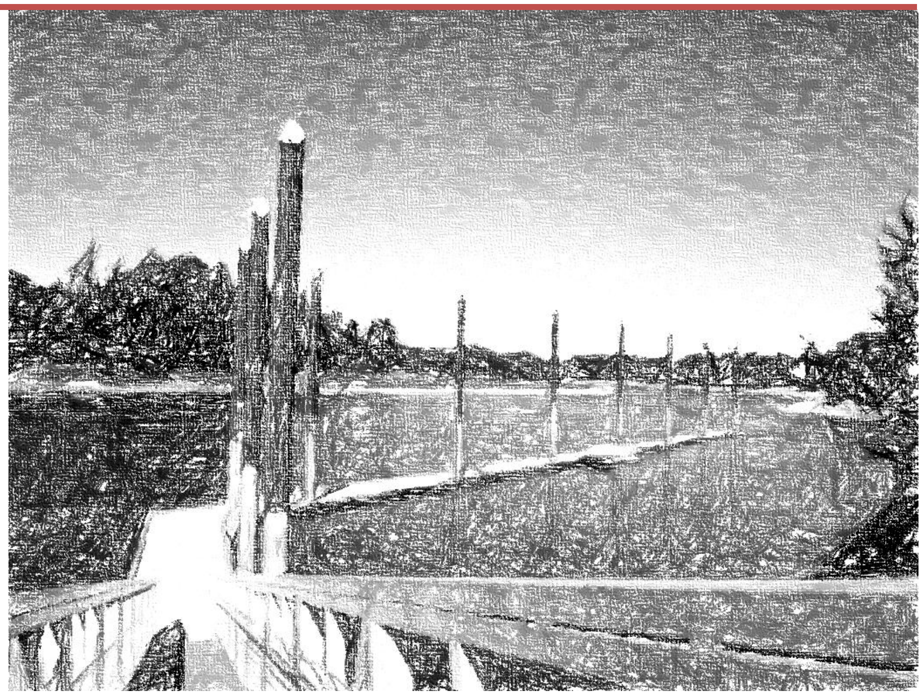
Objective C. Consider regional needs identified in the Metro RTP, including those identified with the mobility corridors.

Objective D. Consider and evaluate transportation solutions and strategies consistent with the guidelines and priorities of the Metro RFTP.

Section 3

THE TRENDS

the trends



Before we determined what investments were needed for the City's transportation system, we first looked at the current travel conditions, and then used the latest planning assumptions to forecast what future growth and travel trends might look like in 2035. We began by assuming that only the funded short-term construction projects would be built and no further investments would be made and then we considered how the system conditions would change with planned growth. The following sections explain where growth is expected, how the transportation system will perform and where solutions will be needed.

Snapshot of Oregon City in 2035

Today, Oregon City is home to over 13,000 households and accounts for over 14,500 jobs. Between now and 2035, household growth is expected to increase nearly 2.4 percent a year, slightly outpacing the rate of employment growth over the same period (2.3 percent). Oregon City is expected to be home to over 23,000 jobs almost 21,000 households by 2035, a 58 and 61 percent increase respectively from 2010. With more people and more jobs in Oregon City, the transportation network will face increased demands.

More People, More Jobs

As shown in Figure 3, much of the population and employment growth is expected to occur around the undeveloped edges of Oregon City. Employment growth is expected to be highest around the Oregon City Regional Center, including downtown Oregon City and the area bounded by the Clackamas River to the north, Abernethy Road on the south, OR 213 on the east and the Willamette River to the west. High employment growth is also anticipated to occur at the southeast end of the City, around OR 213 and Beavercreek Road.

Household growth is expected to be highest towards the south end of the City, along South End Road, Central Point Road, Leland Road and Meyers Road. High household growth is also expected to occur on the north and east side of the City, along Maple Lane Road, Holcomb Boulevard and Redland Road. Much of the planned growth along the edge of the City requires voter approval to bring these lands into the urban area and the city limits. This represents roughly one quarter of the planned growth by 2035.

More Walking, Biking and Transit Usage

While there is great interest in developing forecasting models for bicycles and pedestrians, the traditional travel demand methodology used for predicting motor vehicle activity does not easily apply to bicycle and pedestrian travel for a number of reasons. Because the number of daily biking and walking trips in a community tend to be much smaller than the number of vehicular trips, data on walking and biking is typically too small to develop accurate models. Additionally, how people choose routes when they are walking or biking tends to be much more complicated than when they are driving (i.e., motorists tend to take the shortest routes while bicycles may trade directness to avoid a hill or travel on a lower volume street). The nature of bicycle and pedestrian travel and decision-making is not well understood, and is the subject of current national and local research efforts to incorporate bicycle and pedestrian travel into future traditional travel models.

Other sources of information on bicycle and pedestrian activity, such as the U.S. Census tend to undercount the actual number of walking and biking trips made in a community. This is because Census data focuses on the mode of travel used for work trips, which typically make up less than 20 percent of an individual's travel. In addition, the Census requires that respondents choose only one mode—the one used most often during the survey week. As a result, the Census does not capture the bicycle and pedestrian activity of people who bicycle or walk to access transit, to conduct personal business, to socialize, or for recreation.

Therefore, the future needs for walking, biking and transit in Oregon City were determined by reviewing major growth areas of the City and seeing how they were served by existing facilities. In addition, the areas of the City in close proximity to key destinations (such as schools, parks, transit stops, shopping and employment) that have the potential to attract significant walking and biking trips and areas with existing deficiencies were reviewed to determine locations for prioritized walking, biking or transit investments.

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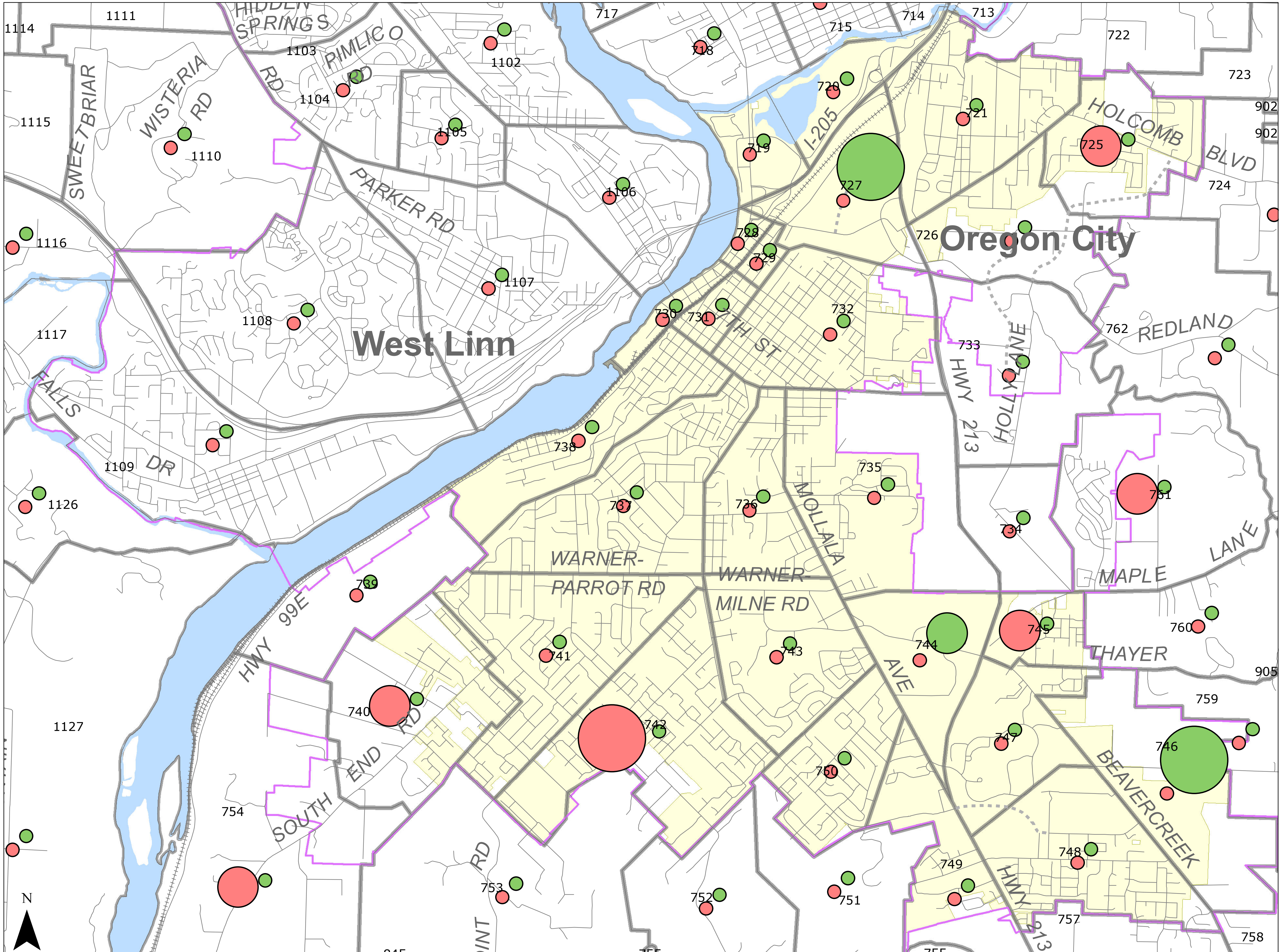


FIGURE 3

Household and Employment Growth (2010 - 2035)

Legend

Household Growth between 2010 and 2035 (by Zone)

- Increase of less than 500 households
- Increase between 500 and 1,000 households
- Increase of more than 1,000 households

Job Growth between 2010 and 2035 (by Zone)

- Increase of less than 500 jobs
- Increase between 500 and 1,000 jobs
- Increase of more than 1,000 jobs

- # Zone Number
- Zone
- River
- Planned Roadways
- Railroad
- City Limit
- Urban Growth Boundary

Estimating Future Travel

A determination of future transportation system needs in Oregon City requires the ability to accurately forecast travel demand resulting from estimates of future population and employment for the City and the rest of the Metro region.

The travel demand forecasting process generally involves estimating travel patterns for new development based on the decisions and preferences demonstrated by existing residents, employers and institutions around the region.

More information on the travel demand forecasting process can be found in the TSP Volume 2, Sections E and F.

More Driving

With more jobs and people, the street network in Oregon City must cope with an additional 21,000 motor vehicle trips during the evening peak hour (see Table A1 in the TSP Volume 2, Section G). Today, the street network in Oregon City is generally able to handle the estimated 33,000 evening peak hour vehicle trips. However, these trips are expected to increase by 3 percent a year, surpassing 54,000 trips by 2035.

Figure 4 shows the estimated increase in motor vehicle trips on the street network during the evening peak hour. As shown, much of the increased demand is expected along the regional roadways, such as I-205, OR 99E and OR 213. These roadways generally connect the Portland Metropolitan area to the employment areas in Oregon City. Other roadways that are expected to see significant traffic increases (according to the Metro travel demand model) include Abernethy Road, Beavercreek Road, Holly Lane, Maple Lane Road, Molalla Avenue, Redland Road and South End Road. Each of these roadways connects a major residential and/or employment growth area in the City to the regional roadway network.

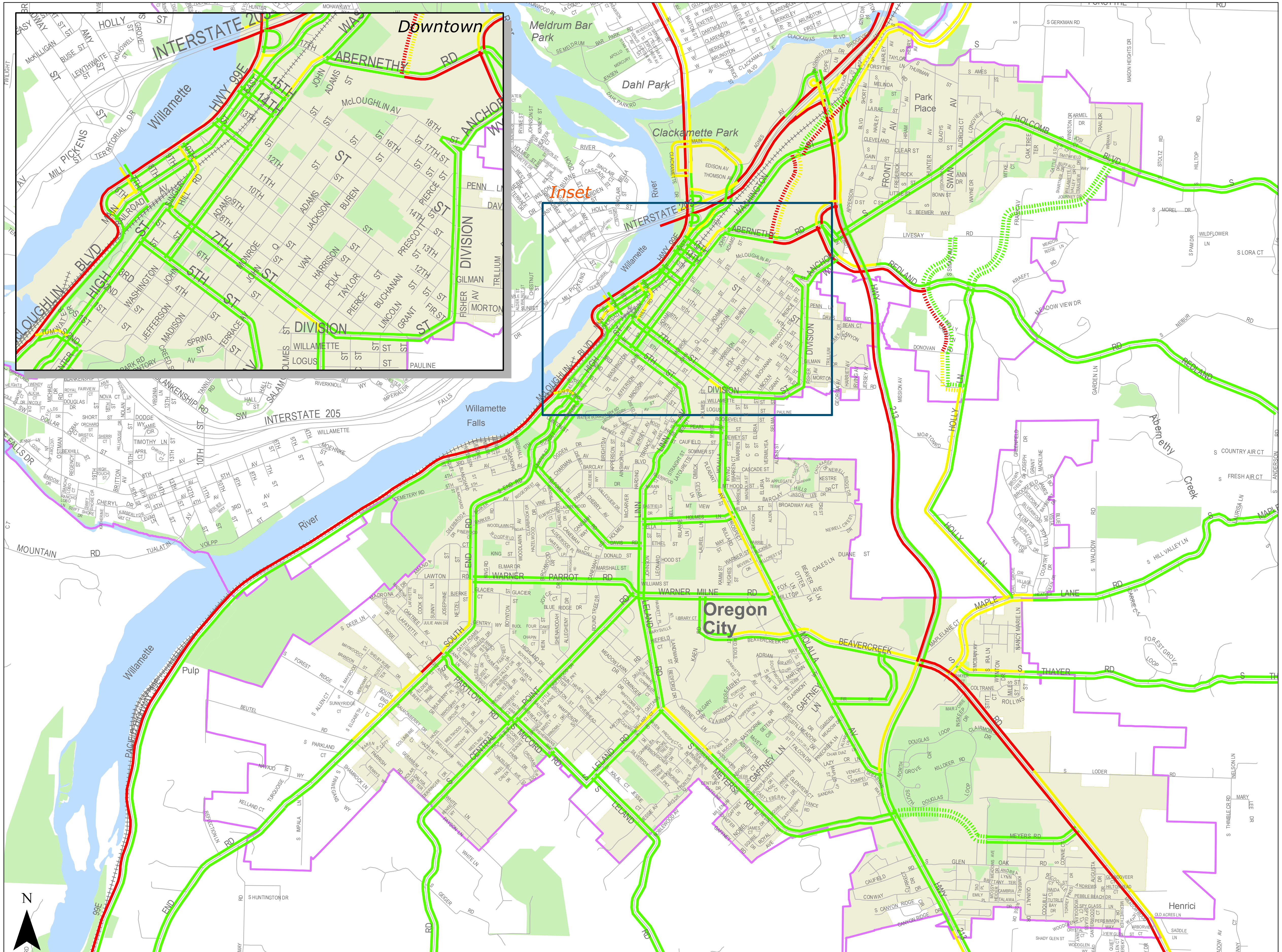
More Congestion

More travel means more congestion. Travel activity as reflected by evening peak hour motor vehicle trips beginning or ending in Oregon City, is expected to increase by 75 percent through 2035. Through travel, or trips that do not begin or end in Oregon City, is also expected to increase through 2035 and is generally representative of growth in Cities such as Molalla and Canby. Figure 5 shows the expected locations that will experience average travel speeds well below the posted limits on the street network in Oregon City, where most of the congestion is expected to be along the regional roadways, such as I-205, OR 99E and OR 213. Congestion on I-205 and OR 213 would generally have less of an impact on Oregon City compared to that on OR 99E. When OR 99E is congested it has more of an impact on surface street circulation around Downtown Oregon City and could potentially detract from shopping or other retail uses in the area. Other roadways that are expected to experience average travel speeds well below the posted limits during the evening include Beavercreek Road, Maple Lane Road, Redland Road and Washington Street.

OREGON CITY TRANSPORTATION PLAN

FIGURE 4

Motor Vehicle Travel Growth (P.M. Peak)

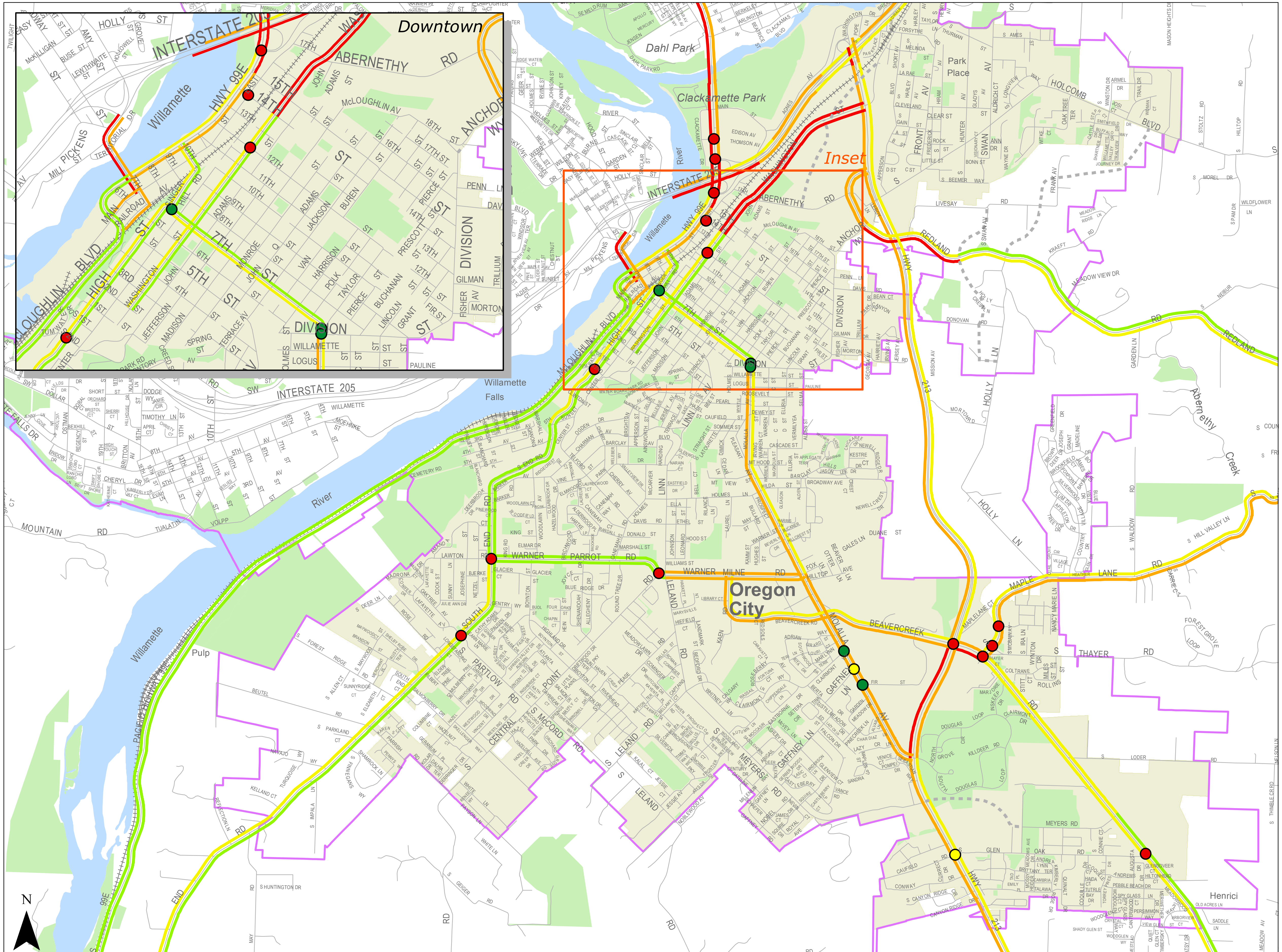


Legend

Roadway Traffic Volume Increase from 2010 to 2035

- Highest Growth in Traffic Volumes (increase of more than 500 vehicles during the p.m. peak hour)
- Moderate Growth in Traffic Volumes (increase between 250 and 500 vehicles during the p.m. peak hour)
- Smallest Growth in Traffic Volumes (less than 250 additional vehicles during the p.m. peak hour)
- River
- Parks and Open Spaces
- Planned Roadways (Conceptual Alignment)
- Railroad
- City Limit
- Urban Growth Boundary

Note: Motor vehicle volumes on the roadways in Oregon City generally peak during the evening between 3:25 p.m. and 5:10 p.m.



TRANSPORTATION PLAN

FIGURE 5

2035 Baseline Motor Vehicle Operating Conditions (P.M. Peak)

Legend

2035 Roadway Travel Speed compared to Posted Speed

- Congested, well below speed limit
- Slowing, well below speed limit
- Slowing, but near speed limit
- Uncongested, near speed limit

2035 Baseline Intersection Operations

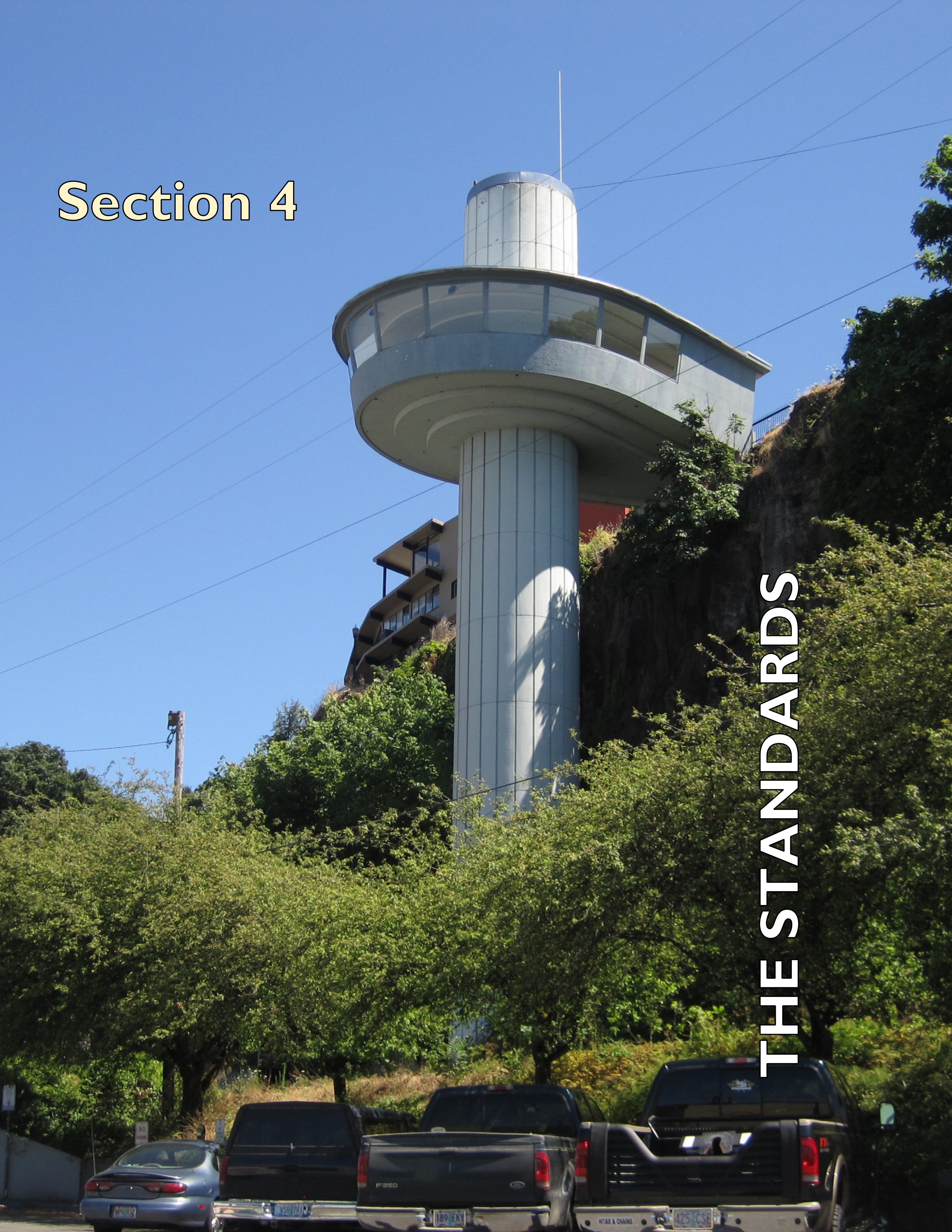
- Good
- Marginal
- Substandard

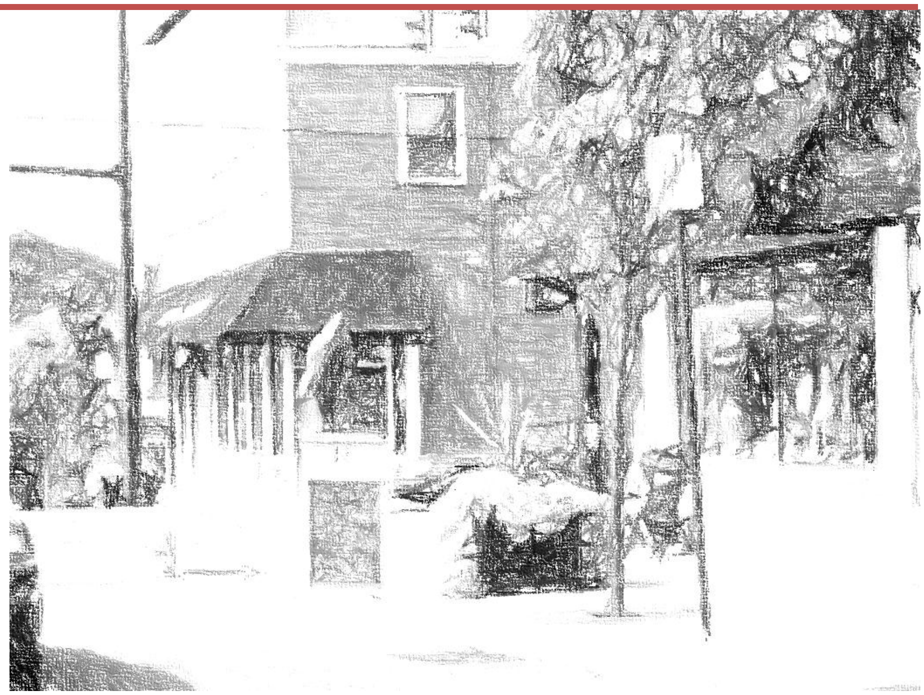
- River
- Parks and Open Spaces
- Baseline Planned Roadways
- Railroad
- City Limit
- Urban Growth Boundary

Note: Motor vehicle volumes on the roadways in Oregon City generally peak during the evening between 3:25 p.m. and 5:10 p.m.

Section 4

THE STANDARDS





Now that we have established our vision for the transportation system in Oregon City, we must develop standards and regulations to ensure future development or redevelopment of property is consistent with the vision.

Multi-Modal Street System

Traditional roadway designs focus on the safety and flow of motor vehicle traffic. The one size fits all design approach is less effective at integrating the roadway with the character of the surrounding area and addressing the needs of other users of a roadway. For instance, the design of an arterial roadway through a commercial area has often traditionally been the same as one through a residential neighborhood, both primarily focused on the movement of motor vehicles.

Oregon City recognizes that all roadways within the City should be multi-modal or "complete streets", with each street serving the needs of the various travel modes. The City also realizes that not all streets should be designed the same. To account for this, Oregon City classified the street system into a hierarchy organized by function and street type (representative of their places). These classifications ensure that the streets reflect the neighborhood through which they pass, consisting of a scale and design appropriate to the character of the abutting properties and land uses. The classifications also provide for and balance the needs of all travel modes including pedestrians, bicyclists, transit riders, motor vehicles and freight. Within these street classifications, context sensitive design may result in alternative cross-sections. The Oregon City multi-modal street system can be seen in Figure 6.

More detail on the multi-modal street system and design type of streets can be found in the TSP Volume 2, Section C.

Multi-Modal Street Function

Functional classification of roadways is a common practice in the United States. Traditionally, roadways are classified based on the type of vehicular travel it is intended to serve (local versus through traffic). In Oregon City, the functional classification of a roadway (shown in Figure 6) determines the level of mobility for all travel modes, defining its design characteristics (such as minimum amount of travel lanes), level of access and usage within the City and region. The street functional classification system recognizes that individual streets do not act independently of one another but instead form a network that works together to serve travel needs on a local and regional level. From highest to lowest intended usage, the classifications are freeway, expressway, major arterials, minor arterials, collectors and local streets. Roadways with a higher intended usage generally provide more efficient motor vehicle traffic movement (or mobility) through the City, while roadways with lower intended usage provide greater access for shorter trips to local destinations.

Multi-Modal Street Type

Oregon City further classifies the roadways within the City based on the neighborhood it serves and the intended function for pedestrians, bicyclists and transit riders in that specific area. Within the context of Oregon City's "complete street" system that will serve all modes, the street type of a roadway defines its cross-section characteristics and determines how users of a roadway interact with the surrounding land use. Since the type and intensity of adjacent land uses and zoning directly influence the level of use by pedestrians, bicyclists and transit riders, the design of a street (including its intersections, sidewalks, and transit stops) should reflect its surroundings.

The street types attempt to strike a balance between street functional classification, adjacent land use, zoning designation and the competing travel needs by prioritizing various design elements. Five street types were designated in Oregon City:

- **Mixed-Use Streets** typically have a higher amount of pedestrian activity and are often on a transit route. These streets should emphasize a variety of travel choices such as pedestrian, bicycle and transit use to complement the development along the street. Since mixed-use streets typically serve pedestrian oriented land uses, walking should receive the highest priority of all the travel modes. They should be designed with features such as wider sidewalks, pedestrian amenities, transit amenities, attractive landscaping, on-street parking, pedestrian crossing enhancements and bicycle lanes.
- **Residential Streets** are generally surrounded by residential uses, although various small shops may be embedded within the neighborhood. These streets often connect neighborhoods to local parks, schools and mixed-use areas. They should be designed to emphasize walking, while still accommodating the needs of bicyclists and motor vehicles. A high priority should be given to design elements such as traffic calming, landscaped buffers, walkways/ pathways/ trails, on-street parking and pedestrian safety enhancements.
- **Commercial/ Employment Streets** are primarily lined with retail and large employment complexes. These uses serve customers throughout the City and

region and may not have a direct relationship with nearby residential neighborhoods. Buildings are typically set back behind parking lots. These streets are somewhat more auto-oriented, but should still accommodate pedestrians and bicyclists safely and comfortably. Design features should include landscaped medians or a two-way left turn lane, sidewalks and bike lanes, pedestrian crossing enhancements and a buffer between the roadway and the sidewalk. On-street parking should be discouraged.

- **Industrial Streets** serve industrial areas. These streets are designed to accommodate a high volume of large vehicles such as trucks, trailers and other delivery vehicles. Pedestrians and bicyclists may be less frequent in these areas, but should still be accommodated safely and comfortably. Roadway widths are typically wider to accommodate larger vehicles. On-street parking should be discouraged.
- **Constrained Streets** are generally located in steep, environmentally sensitive, rural, historic, or development limited areas of the City. These streets may require different design elements that may not be to scale with the adjacent land use. Constrained elements may include narrower or limited travel lanes, and pedestrian and bicycle facilities, or accommodations that generally match those provided by the surrounding developed land uses. To the extent possible, pedestrian and bicycle accommodations should be provided on an adjacent roadway, via a shared-use path or shared within the right-of-way using distinctive design details.

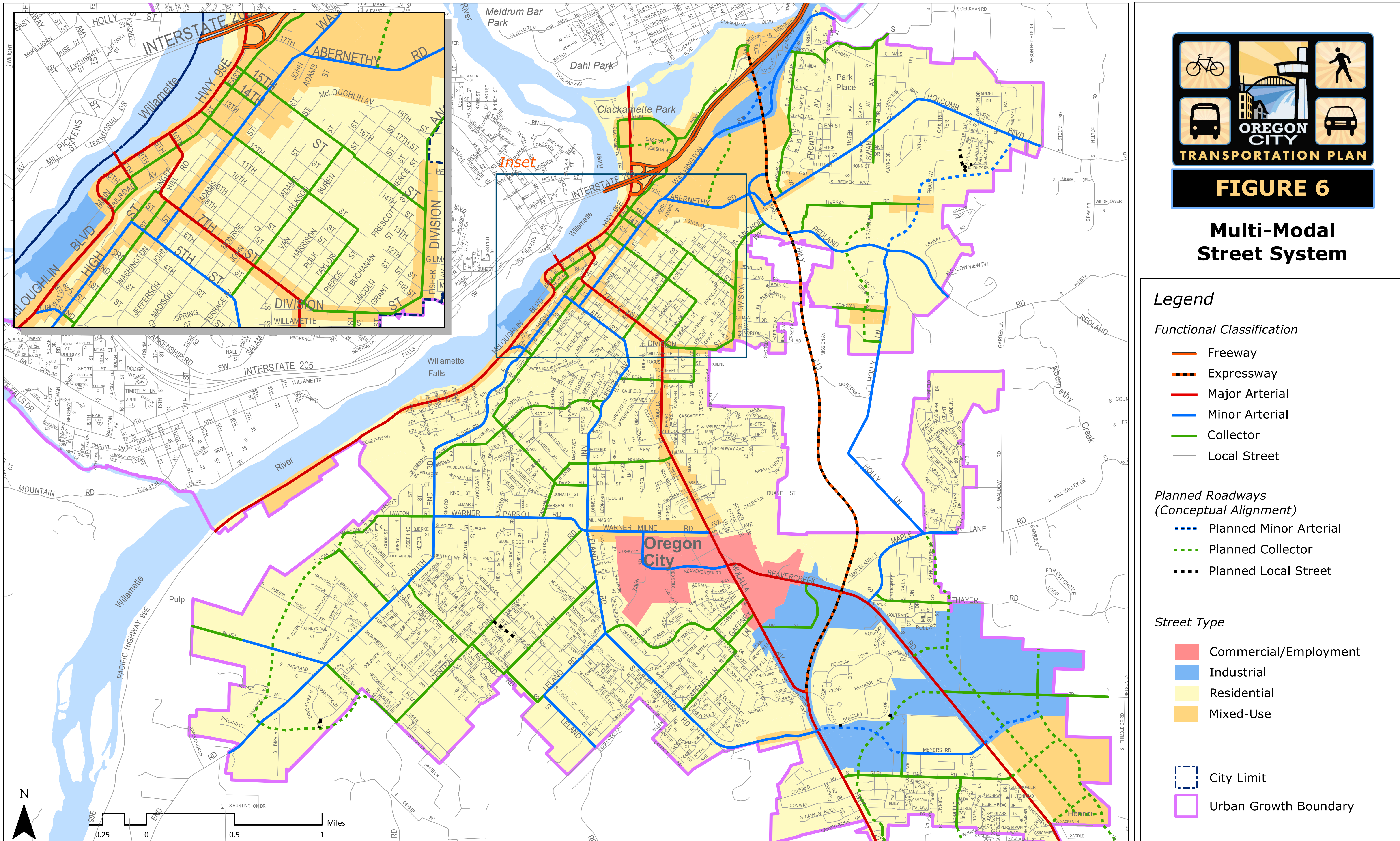


FIGURE 6

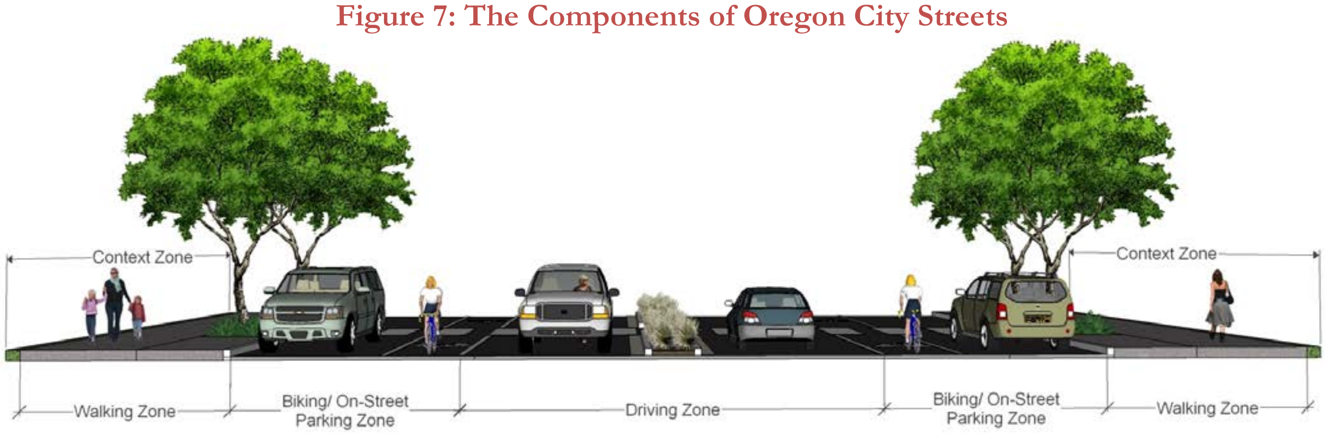
Multi-Modal Street System

Design Types of Streets

Design of the streets in Oregon City requires attention to many elements of the public right-of-way and considers how the street interacts with the adjoining properties. The four zones that comprise the cross-section of streets in Oregon City, including the context zone, walking zone, biking/on-street parking zone and driving zone, are shown in Figure 7. The design of these zones varies based on the functional classification and street type. Overall, there are 16 different design types and four constrained options for streets, ranging from Mixed-Use Major Arterial to Constrained Local Street. Note that a design type is not available for limited access roadways classified as Freeway or Expressway. The design criteria for streets can be seen in Table 1, 2, 3, and 4. The City may also reduce or eliminate lower-priority design elements of the street (as determined by Table 5) along constrained streets located in steep, environmentally sensitive, rural, historic, or development limited areas of the City.

- **Context Zone:** The context zone is the point at which the sidewalk interacts with the adjacent buildings or private property. The purpose of this zone is to provide a buffer between land use adjacent to the street and to ensure that all street users have safe interactions.
- **Walking Zone**: This is the zone in which pedestrians travel. The walking zone is determined by the street type and should be a high priority in mixed-use and residential areas. It includes a minimum five foot clear throughway for walking, an area for street furnishings or landscaping (e.g. benches, transit stops and/or plantings) and a clearance distance between curbside on-street parking and the street furnishing area or landscape strip (so parking vehicles or opening doors do not interfere with street furnishings and/or landscaping). Streets located along a transit route should incorporate furnishings to support transit ridership, such as transit shelters and benches, into the furnishings/landscape strip adjacent to the biking/on-street parking zone.
- **Biking/On-Street Parking Zone:** This is the zone for biking and on-street parking, and is the location where users will access transit. It should include minimum 6 foot bike lanes. The biking/on-street parking zone is determined by the street type and in some cases the functional classification (such as in residential areas) and should be a high priority in mixed-use and residential

Figure 7: The Components of Oregon City Streets



areas. Mixed use areas should include a minimum 6 foot striped bike lane with on-street parking. Residential areas should include a 10 to 11 foot shared access lane with on-street parking on arterials and a 6 foot striped bike lane with on-street parking on collectors. Streets in commercial/employment or industrial areas should include minimum 6 foot bike lanes, with no on-street parking.

- **Driving Zone:** This is the throughway zone for drivers, including cars, buses and trucks and should be a high priority in commercial/ employment and industrial areas. The functional classification of the street generally determines the number of through lanes, lane widths, and median and left-turn lane requirements. However, the route designations (such as transit street or freight route) take presentence when determining the appropriate lane width in spite of the functional classification. Wider lanes (between 13 to 14 feet) should only be used for short distances as needed to help buses and trucks negotiate right-turns without encroaching into adjacent or opposing travel lanes. Streets that require a raised median should include a minimum 6 foot wide pedestrian refuge at marked crossings. Otherwise, the median can be reduced to a minimum of 4 feet at midblock locations, before widening at intersections for left-turn lanes (where required or needed).

Spacing Standards

Access spacing along Oregon City streets will be managed through access spacing standards. Access management is a broad set of techniques that balance the need to provide efficient, safe, and timely travel with the ability to allow access to individual destinations. Proper implementation of access management techniques will promote reduced congestion and accident rates, and may lessen the need for additional highway capacity.

Tables 1 through 4 identify the minimum and maximum public street intersection and minimum private access spacing standards for streets in Oregon City. Within developed areas of the City, streets not complying with these standards could be improved with strategies that include shared access points, access restrictions (through the use of a median or channelization islands) or closed access points as feasible. New streets or redeveloping properties must comply with these standards, to the extent practical (as determined by the City).

This table has been updated in the
Draft Amendments to the Oregon City Municipal Code.

Table 1: Design Criteria for Major Arterial Streets

	Mixed-Use	Commercial/ Employment	Industrial	Residential
Context Zone				
Frontage (For hedges, awnings, planters, merchandise displays and outdoor seating)	Required 3 to 6 ft.	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot
Maximum Block Size (Public Street to Public Street)	530 ft.*	1,320 ft.	1,320 ft.	530 ft.*
Minimum Block Size (Public Street to Public Street)	350 ft.	500 ft.	500 ft.	350 ft.
Minimum Driveway Spacing (Public Street to Driveway and Driveway to Driveway)	175 ft.	225 ft.	225 ft.	175 feet (none on Access Lane
Maximum Distance between Pedestrian Crossings (pedestrian signals or high-visibility markings)	As needed**	As needed**	As needed**	As needed**
Walking Zone				
Recommended Walking Zone Width	15.5 ft.	13.5 ft.	13.5 ft.	11.5 ft.
Walking Facility (throughway)	8 ft. sidewalk	5 ft. sidewalk	5 ft. sidewalk	5 ft. sidewalk
Minimum Furnishings/Landscape Strip Width	6 ft. tree well	8 ft. bioswale	8 ft. bioswale	5 ft. landscape strip
Edge (Clearance between Curb and Furnishings/Landscape Strip)	1.5 ft.	0.5 ft.	0.5 ft.	1.5 ft.
Recommended Street Lighting	Intersection safety lighting, basic street lighting and pedestrian–scaled lighting.			
Biking/On-Street Parking Zone				
Recommended Biking/ On-Street Parking Zone Width	14 ft.	6 ft.	6 ft.	17 ft. Access Lane***
Biking Facility	6 ft. Bike Lanes	6 ft. Bike Lanes	6 ft. Bike Lanes	10 to 11 ft. Shared Access Lane
On-Street Parking Width	8 ft.	None	None	7 ft. on Access Lane
Driving Zone				
Through Lanes	2 to 4 lanes	2 to 4 lanes	2 to 4 lanes	2 to 4 lanes
Lane Width	12 ft.	12 ft.	12 to 14 ft.	12 ft.
Median (To be used for landscaping or pedestrian crossing refuge)	Required 4 to 6 ft.	Required 4 to 6 ft.	Required 4 to 6 ft.	Required 4 to 6 ft. on Access and Through Lanes
Left-Turn Lanes	Required 12 ft.	Required 14 ft.	Required 14 ft.	Required 12 ft.

*If the maximum block size is exceeded, pedestrian crossings must be provided every 330 feet.
**Pedestrian crossings should not be spaced more than 330 feet apart in areas with transit stops, residential uses, schools, parks, shopping and employment destinations, unless the crossings cannot be safely implemented.
***Access lane may be on one, both, or neither side of the street, depending on the access needs of the abutting land use.

This table has been updated in
the Draft Amendments to the Oregon City Municipal Code

Table 2: Design Criteria for Minor Arterial Streets

	Mixed-Use	Commercial/ Employment	Industrial	Residential
Context Zone				
Frontage (For hedges, awnings, planters, merchandise displays and outdoor seating)	Required 3 to 6 ft.	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot
Maximum Block Size (Public Street to Public Street)	530 ft.	1,320 ft.	1,320 ft.	530 ft.
Minimum Block Size (Public Street to Public Street)	265 ft.	400 ft.	400 ft.	265 ft.
Minimum Spacing (Public Street to Driveway and Driveway to Driveway)	175 ft.	225 ft.	225 ft.	175 ft. (none on access lane)
Maximum Distance between Pedestrian Crossings (pedestrian signals or high-visibility markings)	330 ft.*	As needed**	As needed**	330 ft.*
Walking Zone				
Recommended Walking Zone Width	15.5 ft.	13.5 ft.	13.5 ft.	11.5 ft.
Walking Facility (throughway)	8 ft. sidewalk	5 ft. sidewalk	5 ft. sidewalk	5 ft. sidewalk
Minimum Furnishings/Landscape Strip Width	6 ft. tree well	8 ft. bioswale	8 ft. bioswale	5 ft. landscape strip
Edge (Clearance between Curb and Furnishings/Landscape Strip)	1.5 ft.	0.5 ft.	0.5 ft.	1.5 ft.
Recommended Street Lighting	Intersection safety lighting, basic street lighting and pedestrian–scaled lighting.			
Biking/On-Street Parking Zone				
Recommended Biking/ On-Street Parking Zone Width	14 ft.	6 ft.	6 ft.	17 ft. Access Lane***
Biking Facility	6 ft. Bike Lanes	6 ft. Bike Lanes	6 ft. Bike Lanes	10 to 11 ft. Shared Access Lane
On-Street Parking Width	8 ft.	None	None	7 ft. on Access Lane
Driving Zone				
Through Lanes	2 lanes	2 to 4 lanes	2 to 4 lanes	2 lanes
Lane Width	11 to 12 ft.	11 to 12 ft.	12 ft.	11 to 12 ft.
Median (To be used for landscaping or pedestrian crossing refuge)****	Optional 4 to 6 ft.	Required 4 to 6 ft.	Required 4 ft. Striped	Required 4 to 6 ft. on Access Lanes, Optional on Through Lanes
Left-Turn Lanes	Required 11 to 12 ft.	Required 11 to 12 ft.	Required 12 ft.	Required 11 to 12 ft.

*Maximum distance may be exceeded with proper justification showing that crossings cannot be safely implemented.
**Pedestrian crossings should not be spaced more than 330 feet apart in areas with transit stops, residential uses, schools, parks, shopping and employment destinations, unless the crossings cannot be safely implemented.
***Access lane may be on one, both, or neither side of the street, depending on the access needs of the abutting land use.
****Median should be raised, unless noted otherwise

This table has been updated in the
Draft Amendments to the Oregon City Municipal Code

Table 3: Design Criteria for Collector Streets

	Mixed-Use	Commercial/ Employment	Industrial	Residential
Context Zone				
Frontage (For hedges, awnings, planters, merchandise displays and outdoor seating)	Required 3 to 6 ft.	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot
Maximum Block Size (Public Street to Public Street)	530 ft.	800 ft.	800 ft.	530 ft.
Minimum Block Size (Public Street to Public Street)	265 ft.	300 ft.	300 ft.	265 ft.
Minimum Spacing (Public Street to Driveway and Driveway to Driveway)	100 ft.	150 ft.	150 ft.	100 ft.
Maximum Distance between Pedestrian Crossings (high-visibility markings)	330 ft.*	As needed**	As needed**	330 ft.*
Walking Zone				
Recommended Walking Zone Width	15.5 ft.	13.5 ft.	13.5 ft.	11.5 ft.
Walking Facility (throughway)	8 ft. sidewalk	5 ft. sidewalk	5 ft. sidewalk	5 ft. sidewalk
Minimum Furnishings/Landscape Strip Width	6 ft. tree well	8 ft. bioswale	8 ft. bioswale	5 ft. landscape strip
Edge (Clearance between Curb and Furnishings/Landscape Strip)	1.5 ft	0.5 ft.	0.5 ft.	1.5 ft
Recommended Street Lighting	Intersection safety lighting, basic street lighting and pedestrian–scaled lighting.			
Biking/On-Street Parking Zone				
Recommended Biking/ On-Street Parking Zone Width	14 ft.	6 ft.	6 ft.	13 ft.
Biking Facility	6 ft. Bike Lanes	6 ft. Bike Lanes	6 ft. Bike Lanes	6 ft. Bike Lanes
On-Street Parking Width	8 ft.	None	None	7 ft.
Driving Zone				
Through Lanes	2 lanes	2 lanes	2 lanes	2 lanes
Lane Width	10 to 11 ft.	11 to 12 ft.	12 ft.	10 to 11 ft.
Median	None	None	As needed 4 ft. Striped	None
Left-Turn Lanes	Optional 10 to 11 ft.	Optional 11 to 12 ft.	Optional 12 ft.	Optional 10 to 11 ft.

*Maximum distance may be exceeded with proper justification showing that crossings cannot be safely implemented.
**Pedestrian crossings should not be spaced more than 330 feet apart in areas with transit stops, residential uses, schools, parks, shopping and employment destinations, unless the crossings cannot be safely implemented.

This table has been updated in the
Draft Amendments to the Oregon City Municipal Code.

Table 4: Design Criteria for Local Streets

	Mixed-Use	Commercial/ Employment	Industrial	Residential
Context Zone				
Frontage (For hedges, awnings, planters, merchandise displays and outdoor seating)	Required 3 to 6 ft.	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot	Required 2 to 3 ft. hedge when sidewalk abuts a parking lot
Maximum Block Size (Public Street to Public Street)	530 ft.	530 ft.	530 ft.	530 ft.
Minimum Block Size (Public Street to Public Street)	150 ft.	150 ft.	150 ft.	150 ft.
Minimum Spacing (Public Street to Driveway and Driveway to Driveway)	None	None	None	None
Maximum Distance between Pedestrian Crossings (high-visibility markings)	330 ft.*	330 ft.*	330 ft.*	330 ft.*
Walking Zone				
Recommended Walking Zone Width	15.5 ft.	10.5 ft.	10.5 ft.	11.5 ft.
Walking Facility (throughway)	8 ft. sidewalk	5 ft. sidewalk	5 ft. sidewalk	5 ft. sidewalk
Minimum Furnishings/Landscape Strip Width	6 ft. tree well	5 ft. landscape strip	5 ft. landscape strip	5 ft. landscape strip
Edge (Clearance between Curb and Furnishings/Landscape Strip)	1.5 ft	0.5 ft.	0.5 ft.	1.5 ft
Recommended Street Lighting	Intersection safety lighting, basic street lighting and pedestrian–scaled lighting.			
Biking/On-Street Parking Zone				
Recommended Biking/ On-Street Parking Zone Width	8 ft.	0 ft.	0 ft.	7 ft.
Biking Facility	Shared Lanes	Shared Lanes	Shared Lanes	Shared Lanes
On-Street Parking Width	8 ft.	None	None	7 ft.
Driving Zone				
Through Lanes	2 lanes	2 lanes	2 lanes	2 lanes
Lane Width	10 to 11 ft.	11 to 12 ft.	12 ft.	10 to 11 ft.
Median	None	None	As needed 4 ft. Striped	None
Left-Turn Lanes	None	None	None	None

*Maximum distance may be exceeded with proper justification showing that crossings cannot be safely implemented.

This has been updated in the
Draft Amendments to the Oregon City Municipal Code.

The following steps should be used to determine the optimum cross-section for a street:

1. Determine the functional classification and street type based on Figure 6 (Multi-modal Street System). Review Table 1, 2, 3, or 4 to establish the general parameters for the cross-section (such as median width, and context, walking, biking and parking requirements).
2. Review the spacing requirements established for the context zone in Table 1, 2, 3, or 4. Newly constructed or significantly modified streets should comply with the driveway spacing, maximum block size and pedestrian crossing standards to the extent possible.
3. Determine if left-turn lanes are required as established in Table 1, 2, 3, or 4. If required, determine the number of turn lanes needed at intersections via intersection capacity analysis. Intersection design should generally try to minimize pedestrian crossing distance, especially in mixed use and residential areas. If more than one turn-lane is warranted, consider the trade-offs between improved driving mobility and increased crossing distance.
4. Determine the preliminary number of through travel lanes by reviewing the TSP. In general, most streets in Oregon City should have two to four through lanes. More than two through lanes should only be considered if the street and parallel routes cannot effectively accommodate the travel demand.
5. Determine if the street is located along a regional truck route, local truck route or a transit route. If not, the lane width can be reduced to the minimum as established in Table 1, 2, 3, or 4. If the street is a transit route but not a truck route, the lane width can be reduced to a minimum of 11 feet, or the minimum lane width as established in Table 1, 2, 3, or 4, whichever is higher.
6. If the street is located along a transit route, determine the furnishings needed in the walking zone to support ridership, such as transit shelters and benches. Establish the appropriate widths for each and incorporate into the design of the furnishings/landscape strip element.
7. Determine the overall cross-section of the street based on the accumulated width of the design elements (e.g., frontage, biking and walking facilities, furnishings/ landscape strip, edge, parking, travel lanes and median) and compare to the available right-of-way:

- If the cross-section is wider than the right-of-way, identify whether right-of-way acquisition is necessary or whether design elements can be narrowed (as determined by the City). When designing in constrained rights-of-way, identify the components of the street that constitute an ideal cross-section (as shown in Table 5), and reduce the width of or eliminate lower-priority elements as determined by the City. The modified design elements may not be to scale with the adjacent land use.
- If the street is located in steep, environmentally sensitive, rural, historic, or development limited areas of the City (these areas are to be determined by the City), constrained design elements can be considered in coordination with the City. These design elements may be consistent with adjacent developed areas, but may not be to scale with the adjacent land use.

Table 5: Priority of Street Components

Zone	Mixed-Use	Commercial/ Employment	Industrial	Residential
Context Zone	Medium Priority	Medium Priority	Medium Priority	Medium Priority
Walking Zone	Highest Priority	Medium Priority	Medium Priority	Highest Priority
Biking/On-Street Parking Zone	High Priority	Medium Priority	Medium Priority	High Priority
Driving Zone	Lowest Priority	Highest Priority	Highest Priority	Lowest Priority

Multi-Modal Connectivity

The aggregate effect of local street design impacts the effectiveness of the regional system when local travel is restricted by a lack of connecting routes, and local trips are forced onto the regional network.[1] Therefore, streets should be designed to keep through motor vehicle trips on arterial streets and provide local trips with alternative routes. Street system connectivity is critical because roadway networks provide the backbone for bicycle and pedestrian travel in the region. Metro's local street connectivity principal encourages communities to develop a connected network of local streets to provide a high level of access, comfort, and convenience for bicyclists and walkers that travel to and among centers.

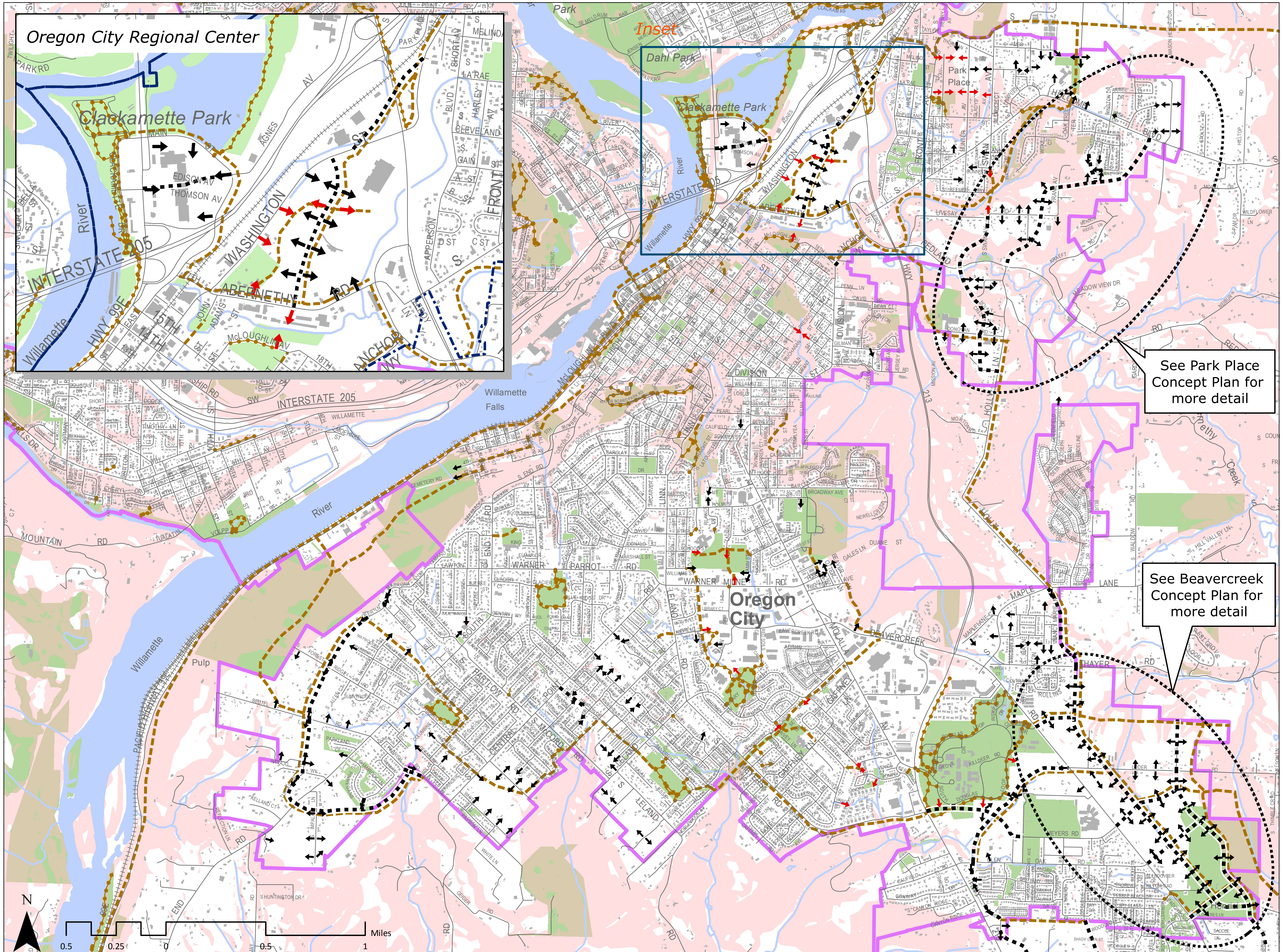
A multi-modal connectivity plan for Oregon City is shown in Figure 8. It specifies the general location where new streets or shared-use paths could potentially be installed as nearby areas are developed or as the opportunity arises. The purpose of the plan is to ensure that new developments accommodate circulation between adjacent neighborhoods to improve connectivity for all modes of transportation.

Truck Routes

Truck routes were designated in Oregon City to ensure trucks can efficiently travel through and access major destinations in the City. Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The designation of through truck routes provides for this efficient movement, while at the same time maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. ODOT has identified I-205 as a freight route through Oregon City. While OR 99E is not classified by ODOT as a freight route, it is designated as a truck route by the federal government.

Much of the freight activity in Oregon City will be related to the employment land. Designated employment land is located near the southeast corner of the City along OR 213, Beavercreek Road and Molalla Avenue. Freight activity is also generated within the Oregon City Regional Center. To allow for efficient movement between these designated areas and regional freight routes, Metro has classified several roadways in the City as freight connectors. The connector roadways link I-205 with the employment areas and include OR 213, Beavercreek Road and OR 99E. Oregon City will designate these streets as local truck routes to ensure freight is adequately accommodated in the City. The Oregon City truck routes can be seen in Figure 9.

[1] Metro 2035 Regional Transportation Plan, Local Street Network Concept



OREGON CITY TRANSPORTATION PLAN

FIGURE 8

Multi-Modal Connectivity Plan

Legend

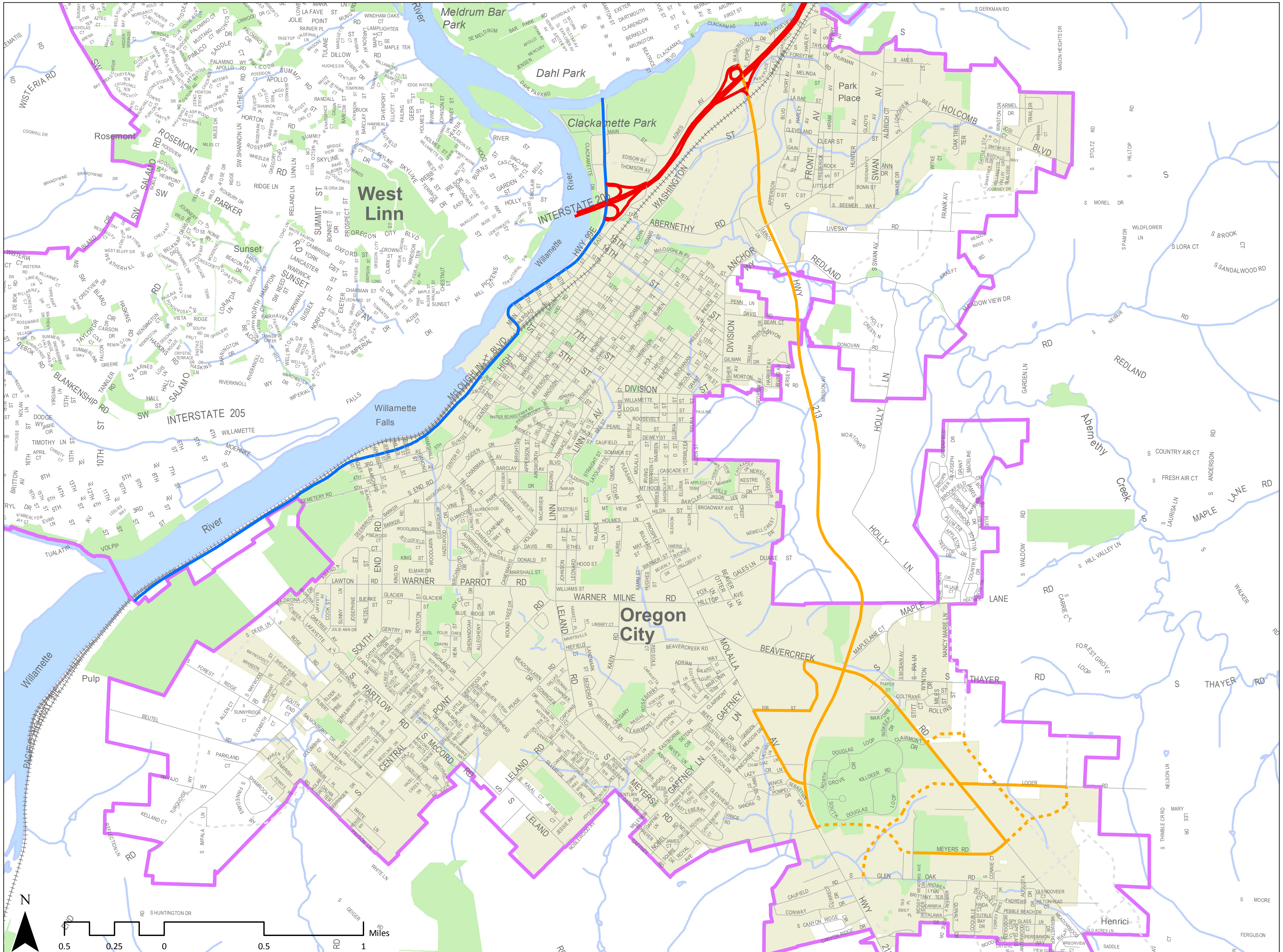
Street Connectivity

- Existing Street
- Planned Roadway Extension (Conceptual Alignment)
- Potential Street Extension

Trail Connectivity

- Existing Shared-Use Path
- Planned Shared-Use Path (Conceptual Alignment)
- Potential Trail Connection

- Steep Slope
- Building
- Stream
- River
- Park/Public Property
- Urban Growth Boundary
- Railroad



OREGON CITY TRANSPORTATION PLAN

FIGURE 9

Truck Routes

Legend

Truck Routes

- ODOT Freight Route
- Federal Truck Route
- Local Truck Route
- Planned Local Truck Route (Conceptual Alignment)
- River
- Parks and Open Spaces
- Planned Street (Conceptual Alignment)
- Railroad
- City Limit
- Urban Growth Boundary

Mobility Standards

Establishing new mobility standards for streets and intersections in Oregon City will provide the City more flexibility in the future with regards to how funds are allocated for intersection and roadway improvements. By allowing more flexibility in the mobility standards, the City will help encourage a sustainable transportation system (consistent with the TSP Update Goal 5) and will allow funds to be focused on higher priority multi-modal improvements rather than driving-focused improvements at locations that are operating below capacity but over the City standard.

In the past, streets were often designed to accommodate the traffic demand during a one-hour peak period without consideration to how wider streets and intersections may impact walking and biking. Having a mobility standard that encourages this is not sustainable, from a fiscal and environmental perspective. The new mobility standard recommended in Oregon City will allow more congestion during the peak period of travel, but will allow safer and more comfortable streets for multi-modal travel. The following mobility standards are recommended for non-state owned streets in Oregon City for the two-hour peak operating conditions. They should be applied to the highest two consecutive hours for weekday traffic volumes, with the second-hour being the hour before or hour after the highest one hour peak period.

- During the highest one-hour period of the day (typically, but not always during the evening peak period between 4 and 6 p.m.): A maximum v/c ratio of 0.99 shall be maintained at all intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to the worst movement.
- For the second hour (either the hour before or hour after the peak hour): A maximum v/c ratio of 0.99 shall be maintained at all intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to the worst movement.

Since streets located in the Oregon City Regional Center should be designed to encourage walking, biking and transit usage, the following mobility standards should be applied:

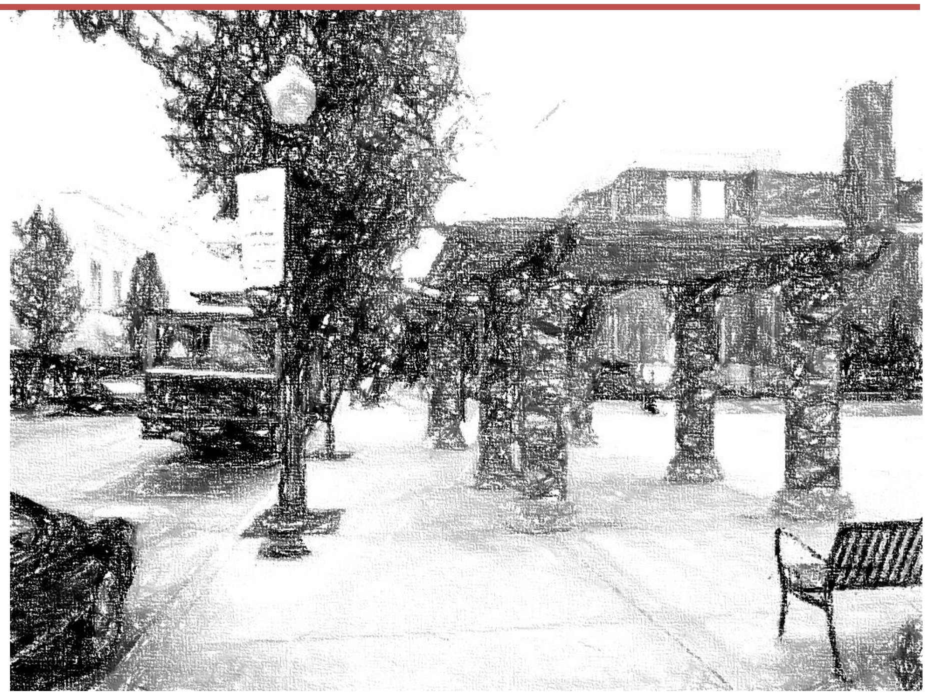
- During the highest one-hour period of the day a maximum v/c ratio of 1.10 shall be maintained at all intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to the worst movement.
- For the second hour (either the hour before or hour after the peak hour) a maximum v/c ratio of 0.99 shall be maintained at all intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to the worst movement.

All non-state owned streets in the City (outside of the Regional Center) require a maximum v/c ratio of 0.99 to be maintained during the highest two consecutive hours for weekday traffic volumes.

Section 5

THE INVESTMENTS

the investments



The Oregon City approach to developing transportation solutions for this update placed more value on investments in smaller cost-effective solutions for the transportation system rather than larger, more costly ones. The approach enabled more cost-effective solutions to increase transportation system capacity and helped to encourage multiple travel options, increase street connectivity and promote a more sustainable transportation system.

Taking the network approach to transportation system improvements, the projects in this plan fall within one of several categories:

- **Driving** projects to improve connectivity, safety and capacity throughout the City. Oregon City identified 93 driving projects that will cost an estimated $161.3 million to complete.
- **Walking** projects for sidewalk infill, providing seamless connections for pedestrians throughout the City. Oregon City identified 75 walking projects that will cost an estimated $14.7 million to complete.
- **Biking** projects including an integrated network of bicycle lanes and marked on-street routes that facilitates convenient travel citywide. Oregon City identified 66 biking projects that will cost an estimated $5.3 million to complete.
- **Shared-Use Path** projects providing local and regional off-street travel for walkers and bikers. The citywide shared-use path vision includes 53 projects totaling an estimated $30.2 million.
- **Transit** projects to enhance the quality and convenience for passengers. Oregon City identified four transit projects that will cost an estimated $1.3 million to complete.
- **Family Friendly** projects to fill gaps between shared-use paths, parks, and schools, offering a network of low-volume streets for more comfortable biking and walking throughout the City. The 33 family-friendly routes identified by the City will cost an estimated $5.2 million to complete.
- **Crossing** project solutions, proving safe travel across streets along key biking and walking routes. A total of

Identifying Transportation System Investments

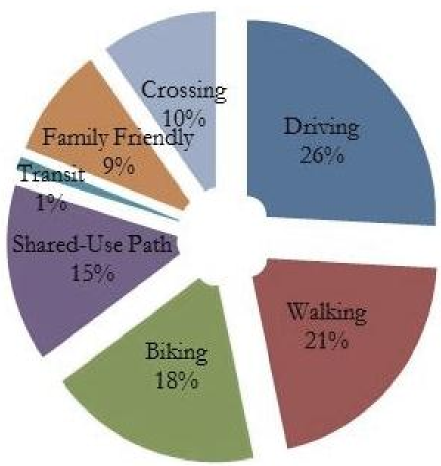
Recall that the Oregon City approach for this update placed more value on investments in smaller cost-effective solutions for the transportation system rather than larger, more costly ones where practical. The approach identified solutions to accommodate future travel demand by following a five-step process (shown previously in Figure 1) that considered solutions from top to bottom until a viable solution was identified.

See Section 2 of this Plan for more information.

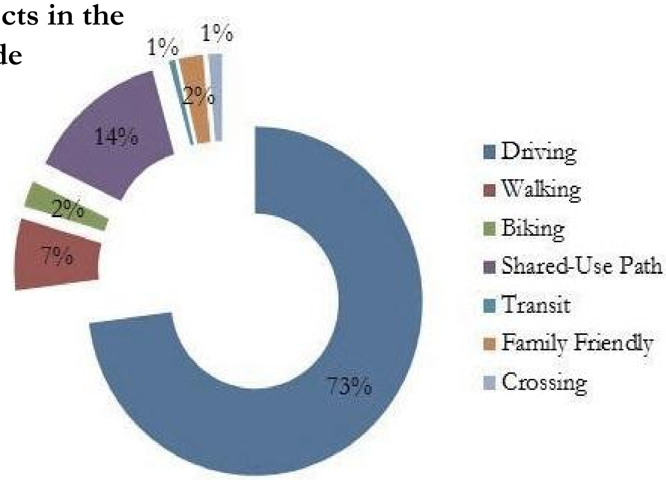
36 crossing projects were identified, totaling an estimated $2.8 million.

Overall, Oregon City identified 360 transportation solutions, totaling an estimated $221 million worth of investments. As shown in Figure 10, only about 25 percent of the improvements in the Plan are driving projects, yet these projects account for nearly 75 percent of the total project expenses of the Plan.

Figure 10: Breakdown of the Projects and Expenses in the Plan



Breakdown of projects in the Plan by mode

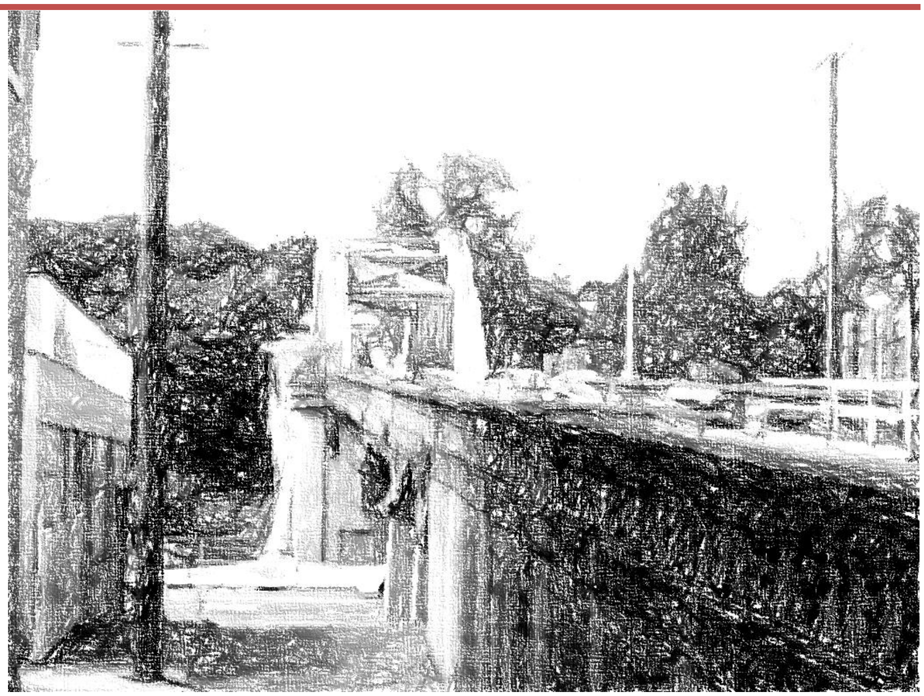


Breakdown of project expenses in the Plan by mode

Section 6

THE FUNDING

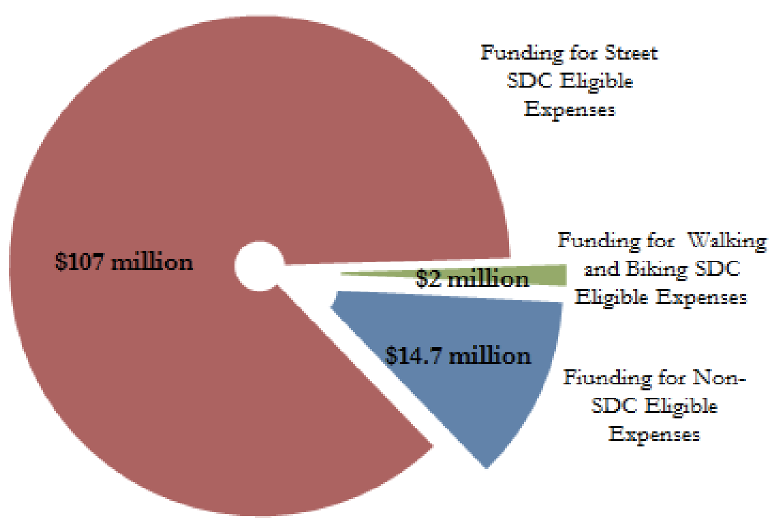
the funding



With an estimated $221 million worth of transportation solutions identified, Oregon City must make investment decisions to develop a set of transportation improvements that will likely be funded to meet identified needs through 2035. Overall, Oregon City is expected to have the following funds available through 2035 after accounting for the expenditures (see Figure 11):

- Approximately $14.7 million is expected to be available for capital improvement needs after street operation and maintenance needs are met through 2035. These funds can be spent on non-SDC eligible project costs or other street improvements that are related to maintenance such as upgraded retaining walls and stairways, new guardrail, signal equipment replacement and upgrades, or curb and gutter.
- Over $109 million is expected to be available for System Development Charge (SDC) projects after reducing the planned SDC project expenditures through 2035. This includes about $2 million for pedestrian and bicycle SDC projects and over $107 million for street SDC projects. The improvement projects eligible for SDC funding can be updated on-going. It was assumed that the needed transportation system investments identified through the TSP update would be used to amend the existing SDC project list.

Figure 11: Expected Funding for the Plan

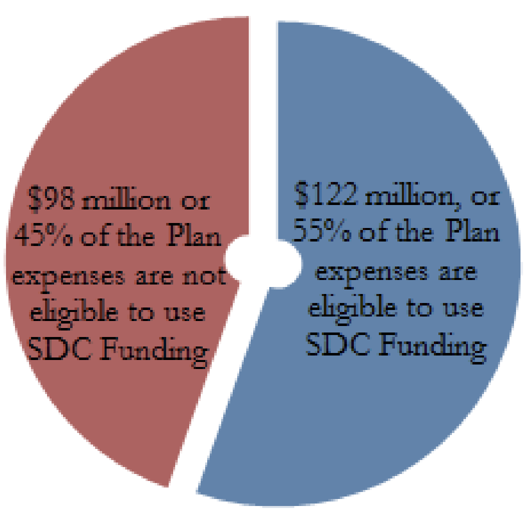


Funding Shortfall

To put the expected available funding in context, over $161 million worth of motor vehicle, over $50 million worth of pedestrian, bicycle and shared-use path improvements and $9 million worth of transit, street crossing and family-friendly route projects were identified by the City. Of those project costs (as shown in Figure 12), approximately $99 million of the motor vehicle and $23 million of the pedestrian, bicycle and shared-use path project costs are needed to accommodate new development, and therefore are eligible for SDC funding. This leaves about $62 million in motor vehicle and $27 million in pedestrian, bicycle and shared-use path project costs to serve existing transportation deficiencies. These project costs, in addition to the transit, street crossing and family-friendly route project costs, are not eligible to utilize SDC funds and must be funded through other means, such as the Street Fund or other State or Federal grants.

Unless additional funds are developed, Oregon City will be expected to have a little over $14.7 million (from the Street Fund) to cover the $62 million in motor vehicle, $27 million in pedestrian, bicycle and shared-use path, and $9 million in transit, street crossing and family-friendly route project costs that are not eligible for SDC funds (based on the current revenue and expenditure forecasts). In other words, about $83.3 million worth of projects would be unfunded.

Figure 12: Eligibility of Plan Investments for SDC Funding



Funding Shortfall for Transportation System Investments

The total cost of transportation system projects needed is greater than the City's ability to raise funding.

Unless additional funds are developed, Oregon City will be expected to have a little over $14.7 million (from the Street Fund) to cover the $62 million in motor vehicle, $27 million in pedestrian, bicycle and shared-use path, and $9 million in transit, street crossing and family-friendly route project costs that are not eligible for SDC funds.

For more detailed funding information, see the TSP Volume 2, Section H.

Section 7

THE PLAN

the plan

As detailed in the Funding section, the City is expected to have approximately $14.7 million to cover the $98 million in project costs that are not eligible for SDC funds. Clearly, most of the transportation solutions identified for the City are not reasonably likely to be funded through 2035. For this reason, the transportation solutions were split into two categories. Those reasonably expected to be funded by 2035 were included in the Financially Constrained Transportation System, while the projects that are not expected to be funded by 2035 were included in the Planned Transportation System.

How did we determine the investments that made the Financially Constrained Plan?

Using the eight goals (see Section 2), the transportation solutions were evaluated and compared to one another. Greater value was placed on the projects stakeholders felt were most important to the community.

Each transportation solution was assigned a time frame for the expected investment need, based on a projects contribution to achieving the transportation goals of Oregon City. The investment recommendations attempted to balance implementation considerations. Complex and costly capital projects were disfavored compared with implementation of low cost projects that can have more immediate impacts and can spread investment benefits citywide.

Project evaluation scores can be found in Table A1 of the TSP Volume 2, Section I.

Financially Constrained Transportation System

The Financially Constrained Plan identifies the transportation solutions reasonably expected to be funded by 2035 and have the highest priority for implementation. Transportation solutions within the Financially Constrained Transportation System were recommended within several different priority/time horizons:

- Short-term: projects recommended for implementation in within 1 to 5 years.
- Medium-term: projects recommended for implementation in within 5 to 10 years.
- Long-term: projects likely to be implemented beyond 10 years from the adoption of this plan. These projects are important for the development of the City transportation network, but are unlikely to be funded in the next 10 years.

The Financially Constrained Transportation solutions are summarized in Table 6 and illustrated in Figures 14 to 19. The projects numbered on Figures 10 to 15 correspond with the project numbers in Table 6. The project numbers are denoted as follows:

- Driving ("D")
- Walking ("W")
- Biking ("B")
- Shared-use path ("S")
- Transit ("T")
- Street crossing ("C")
- Family-Friendly route ("FF")

Planning level cost estimates for the projects can be found in Table A1 of the TSP Volume 2, Section I.

Over $73 million worth of investments are included in the Financially Constrained Transportation System. As shown in Figure 13, about 80 percent (or $58.6 million) of these investments were eligible to utilize SDC funding. All expected City revenue for non-SDC eligible expenses (about $14.7 million) will be needed to fund the remaining 20 percent of the Financially Constrained Transportation System investments.

The Financially Constrained Transportation System includes over $73 million worth of investments.

Figure 13: Funding for the Financially Constrained Transportation System

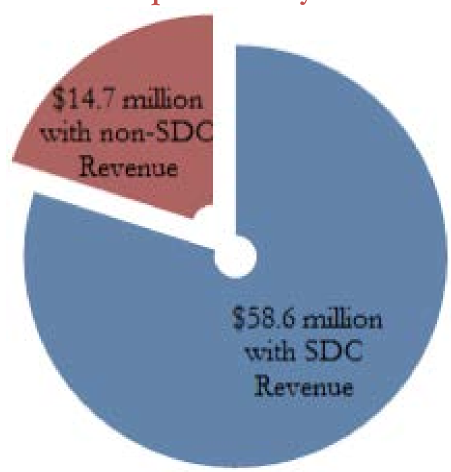


Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
Driving Solutions (Intersection and Street Management- see Figure 14)				
D1	Molalla Avenue/ Beavercreek Road Adaptive Signal Timing	Molalla Avenue from Washington Street to Gaffney Lane; Beavercreek Road from Molalla Avenue to Maple Lane Road	Deploy adaptive signal timing that adjusts signal timings to match real-time traffic conditions.	Short-term
D7	Option 1: 14th Street Restriping	Option 1: OR 99E to John Adams Street	**Option 1:** Convert 14th Street to one-way eastbound between McLoughlin Boulevard and John Adams Street: • Convert the Main Street/14th Street intersection to all-way stop control (per project D13). • From McLoughlin Boulevard to Main Street, 14th Street would be restriped to include two 12-foot eastbound travel lanes, a six-foot eastbound bike lane, a six-foot westbound contra-flow bike lane, and an eight-foot landscaping buffer on the north side • From Main Street to Washington Street, 14th Street would be restriped to include two 11-foot eastbound travel lanes, a five-foot eastbound bike lane, a five-foot westbound contra-flow bike lane, and an eight-foot on-street parking lane on the north side • From Washington Street to John Adams Street, 14th Street would be restriped to include one 12-foot eastbound travel lane, a six-foot eastbound bike lane, a six-foot westbound contra-flow bike lane, and an eight-foot on-street parking lane on the north and south side • Add a bicycle signal, with detection at the McLoughlin Boulevard/14th Street intersection. Add bicycle detection to the traffic signal at the Washington Street/14th Street intersection.	Short-term
	Option 2: Main Street/14th Street Intersection Widening	Option 2: Main Street/14th Street	**Option 2:** Convert the Main Street/14th Street intersection to all-way stop control (per project D13). Widen 14th Street to include shared through/left-turn and through/right-turn lanes in both directions	
D8	15th Street Restriping	OR 99E to John Adams Street	Convert 15th Street to one-way westbound between Washington Street and McLoughlin Boulevard: • From John Adams Street to Washington Street, 15th Street would be striped as a shared-roadway (per project B6).	Included with project D7

Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
			• From Washington Street to Main Street, 15th Street would be restriped to include two 11-foot westbound travel lanes, a five-foot westbound bike lane, a five-foot eastbound contra-flow bike lane, and an eight-foot on-street parking lane on the south side. Complete the sidewalk gaps on the north side of 15th Street between Main Street and Center Street, and on the south side between Center Street and Washington Street (per project W75). • From Main Street to McLoughlin Boulevard, 15th Street would be restriped to include two 12-foot travel lanes, a six-foot westbound bike lane, and an eight-foot on-street parking lane on the south side. Add a 12-foot shared-use path with a two-foot buffer adjacent to the on-street parking lane. Add bicycle detection to the traffic signal at the Washington Street/15th Street intersection.	
D11	Optimize existing traffic signals	Citywide	Optimize the existing traffic signals by updating the existing coordinated signal timing plans, upgrading traffic signal controllers or communication infrastructure or cabinets.	Short-term
D12	Protected/permitted signal phasing	Citywide	Incorporate protected/permitted phasing for left turn movements at traffic signals.	Short-term
D13	Main Street/14th Street Safety Enhancement	Main Street/14th Street	Convert to all-way stop control to be consistent with the traffic control at surrounding intersections on Main Street.	Included with project D7
D14	Southbound OR 213 Advanced Warning System	Southbound OR 213, north of the Beavercreek Road intersection	Install a queue warning system for southbound drivers on OR 213 to automatically detect queues and warn motorists in advance via a Variable Message Sign	Short-term
D27	OR 213/Beavercreek Road Operational Enhancement	OR 213/Beavercreek Road	Lengthen the dual left-turn lanes along Beavercreek Road to provide an additional 200 feet of storage for the eastbound approach	Short-term
D28	Washington Street/12th Street Safety Enhancement	Washington Street/12th Street	Install a traffic signal with dedicated left turn lanes for the 12th Street approaches to Washington Street.	Medium-term
D30	Molalla Avenue/Division Street-Taylor Street Safety Enhancement	Molalla Avenue/Division Street-Taylor Street	Install a single-lane roundabout	Medium-term
D32	South End Road/Warner Parrott Road Operational Enhancement	South End Road/Warner Parrott Road	Install a traffic signal with dedicated left turn lanes for the South End Road approaches to Warner Parrott Road	Medium-term

Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
D33	South End Road/Lafayette Avenue-Partlow Road Operational Enhancement	South End Road/Lafayette Avenue-Partlow Road	Install a single-lane roundabout	Medium-term
D40	Main Street/Dunes Drive Extension Operational Enhancement	Main Street/Dunes Drive Extension	Install a single-lane roundabout	Long-term
D41	South End Road/Buetel Road Extension Operational Enhancement	South End Road/Buetel Road Extension	Install a single-lane roundabout	Medium-term
D42	South End Road/Deer Lane Extension Operational Enhancement	South End Road/Deer Lane Extension	Install a single-lane roundabout	Long-term
D43	Holcomb Boulevard/Holly Lane North Extension Operational Enhancement	Holcomb Boulevard/Holly Lane North Extension	Install a single-lane roundabout	Long-term
D44	Beavercreek Road/Loder Road Extension Operational Enhancement	Beavercreek Road/Loder Road Extension	Install a roundabout	Medium-term
D45	Meyers Road Extension/ Loder Road Extension Operational Enhancement	Meyers Road Extension/ Loder Road Extension	Install a single-lane roundabout	Medium-term
Driving Solutions (Street Extensions- see Figure 15)				
D46	Meyers Road West extension	OR 213 to High School Avenue	Extend Meyers Road from OR 213 to High School Avenue as an Industrial Minor Arterial. Create a local street connection to Douglas Loop.	Short-term
D47	Meyers Road East extension	Beavercreek Road to the Meadow Lane Extension	Extend Meyers Road from Beavercreek Road to the Meadow Lane Extension as an Industrial Minor Arterial. Between the Holly Lane and Meadow Lane extensions, add a sidewalk and bike lane to the south side of the street, with a shared-use path to be added on north side per project S19. Modify the existing traffic signal at Beavercreek Road	Medium-term
D48	Holly Lane North extension	Redland Road to Holcomb Boulevard	Extend Holly Lane from Redland Road to Holcomb Boulevard as a Residential Minor Arterial. Create local street connections to Cattle Drive and Journey Drive.	Long-term
D49	Swan Avenue extension	Livesay Road to Redland Road	Extend Swan Avenue from Livesay Road to Redland Road as an Residential Collector	Long-term
D50		Redland Road to Morton Road	Extend Swan Avenue from Redland Road to Morton Road as an Residential Collector	Long-term
D51	Deer Lane extension	Rose Road to Buetel Road	Extend Deer Lane from Rose Road to Buetel Road as a Residential Collector. Add a sidewalk and bike lane to the	Long-term

Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
			east side of the street, with a shared-use path to be added on west side per project S32.	
D52		Buetel Road to Parrish Road	Extend Deer Lane from Buetel Road to Parrish Lane as a Residential Collector. Add a sidewalk and bike lane to the east/north side of the street, with a shared-use path to be added on west/south side per project S33. Create a local street connection to Finnegans Way Install a roundabout at South End Road (per project D42).	Long-term
D53	Madrona Drive extension	Madrona Drive to Deer Lane	Extend Madrona Drive to Deer Lane as a Constrained Residential Collector	Long-term
D54	Clairmont Drive extension	Beavercreek Road to Holly Lane South Extension	Extend Clairmont Drive from Beavercreek Road to the Holly Lane South extension as an Industrial Collector. Add a sidewalk and bike lane to the south side of the street, with a shared-use path to be added on north side per project S17.	Long-term
D55	Glen Oak Road extension	Beavercreek Road to the Meadow Lane Extension	Extend Glen Oak Road from Beavercreek Road to the Meadow Lane Extension as a Residential Collector. Install a roundabout at Beavercreek Road (per project D39)	Long-term
D56	Timbersky Way extension	Beavercreek Road to the Meadow Lane Extension	Extend Timbersky Way from Beavercreek Road to the Meadow Lane Extension as a Residential Collector. Add a sidewalk and bike lane to the south side of the street, with a shared-use path to be added on north side per project S20.	Long-term
D57	Holly Lane South extension	Maple Lane Road to Thayer Road	Extend Holly Lane from Maple Lane Road to Thayer Road as a Residential Collector. Add a sidewalk and bike lane to the west side of the street, with a shared-use path to be added on east side per project S14. Install a roundabout at Maple Lane Road (per project D37).	Medium-term
D58		Thayer Road to Meyers Road	Extend Holly Lane from Thayer Road to the Meyers Road extension as an Industrial Collector. Add a sidewalk and bike lane to the west side of the street, with a shared-use path to be added on east side per project S15.	Medium-term
D59		Meyers Road to the Meadow Lane Extension	Extend Holly Lane from the Meyers Road extension to the Meadow Lane Extension as a Mixed-Use Collector. Add a sidewalk and bike lane to the west side of the street, with a shared-use path to be added on east side per project S16.	Long-term

Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
D60	Meadow Lane extension	Meadow Lane to Meyers Road	Extend Meadow Lane to the Meyers Road Extension as a Mixed-Use Collector. Between Old Acres Lane and the Glen Oak Road extension, add a sidewalk and bike lane to the west side of the street, with a shared-use path to be added on east side per project S21.	Long-term
D61		Meyers Road to UGB (north of Loder Road)	Extend Meadow Lane from the Meyers Road Extension to the UGB (north of Loder Road) as an Industrial Collector	Medium-term
D62	Dunes Drive Extension	OR 99E to Agnes Avenue	Extend Dunes Drive from OR 99E to Agnes Avenue as a Mixed-Use Collector. Install a roundabout at the Dunes Drive/Agnes Avenue intersection (per project D38). Will require redevelopment of the Oregon City Shopping Center.	Medium-term
D63	Washington Street to Abernethy Road Connection	Washington Street to Abernethy Road	Connect Washington Street to Abernethy Road with a Mixed-Use Collector. Add a sidewalk and bike lane to the west side of the street, with a shared-use path to be added on east side per project S5. This street should be a public access road built to City standards but maintained by a private entity.	Long-term
D64	Loder Road Extension	Beavercreek Road to Glen Oak Road	Extend Loder Road from Beavercreek Road to Glen Oak Road as an Industrial Collector. Add a sidewalk and bike lane to the west side of the street, with a shared-use path to be added on east side per project S18. Create a local street connection to Douglas Loop. Install a roundabout at Meyers Road (per project D45).	Short-term
D65	Parrish Road Extension	From Parrish Road east to Kolar Drive	Complete the gap between Parrish Road as a Constrained Residential Collector.	Long-term
D66	Washington Street Realignment	Home Depot Driveway to Clackamas River Drive	Washington Street Realignment associated with the OR 213/Washington Street Jug-handle Project.	Under Construction
D72	Hampton Drive Extension	Hampton Drive to Atlanta Drive	Extend Hampton Drive to Atlanta Drive as a Residential Local Street.	Long-term
Driving Solutions (Street and Intersection Expansions- see Figure 16)				
D80	Division Street Upgrade	7th Street to 18th Street	Improve to Collector cross-section, as a constrained street	Long-term
D81	Beavercreek Road Upgrade	Clairmont Drive (CCC Entrance) to Meyers Road	Improve to Industrial Major Arterial cross-section	Medium-term

Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
D82		Meyers Road to UGB	Improve to Residential Major Arterial cross-section	Long-term
D89	South End Road Upgrade	Partlow Road-Lafayette Road to UGB	Improve to Residential Minor Arterial cross-section	Medium-term
D92	Washington Street Upgrade	11th Street to 7th Street	Improve to Minor Arterial cross-section, as a constrained street. Add curb-ramps at intersections	Medium-term
Walking Solutions (see Figure 17)				
W5	Washington Street Sidewalk Infill	Washington Street-Abernethy Road Extension to Abernethy Road	Complete sidewalk gaps on both sides of the street	Short-term
W11	Holcomb Boulevard (East of OR 213) Sidewalk Infill	OR 213 overcrossing to Swan Avenue	Complete sidewalk gaps on both sides of the street	Medium-term
W12		Longview Way to Winston Drive	Complete sidewalk gaps on both sides of the street	Medium-term
W13		Barlow Drive to UGB	Complete sidewalk gaps on both sides of the street	Medium-term
W34	Molalla Avenue Sidewalk Infill	Gaffney Lane to Sebastian Way	Complete sidewalk gaps on both sides of the street	Included with project W74
W35	Leland Road Sidewalk Infill	Warner Milne Road to Meyers Road	Complete sidewalk gaps on both sides of the street	Short-term
W41	Warner Milne Road Sidewalk Infill	Leland Road to west of Molalla Avenue	Complete sidewalk gaps on both sides of the street	Short-term
W42	Beavercreek Road Sidewalk Infill	Warner Milne Road to east of Kaen Road	Complete sidewalk gaps on the east side of the street	Short-term
W47	South End Road (south of Partlow) Sidewalk Infill	Partlow Road to Buetel Road	Complete sidewalk gaps on both sides of the street	Included with project D89
W48		Buetel Road to UGB	Complete sidewalk gaps on both sides of the street	Included with project D89
W54	South End Road (north of Partlow) Sidewalk Infill	Partlow Road to Barker Avenue	Complete sidewalk gaps on both sides of the street	Short-term
W56	Warner Parrott Road Sidewalk Infill	King Road to Marshall Street	Complete sidewalk gaps on the north side of the street	Short-term
W62	Linn Avenue Sidewalk Infill	Ella Street to Charman Avenue	Complete sidewalk gaps on both sides of the street	Short-term
W64	Brighton Avenue-Creed Street Sidewalk Infill	Charman Avenue to Waterboard Park Road	Complete sidewalk gaps on both sides of the street	Short-term
W65	Brighton Avenue-Park Drive Sidewalk Infill	Charman Avenue to Linn Avenue	Complete sidewalk gaps on both sides of the street	Short-term
W70	Division Street Sidewalk Infill	7th Street to 18th Street	Complete sidewalk gaps on both sides of the street	Included with

Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
				project D80
W73	Molalla Avenue Streetscape Improvements Phase 3	Holmes Lane to Warner Milne Road	Streetscape improvements including widening sidewalks, sidewalk infill, ADA accessibility, bike lanes, reconfigure travel lanes, add bus stop amenities.	Medium-term
W74	Molalla Avenue Streetscape Improvements Phase 4	Beavercreek Road to OR 213	Streetscape improvements including widening sidewalks, sidewalk infill, ADA accessibility, bike lanes, reconfigure travel lanes, add bus stop amenities.	Medium-term
W75	15th Street Sidewalk Infill	OR 99E to Washington Street	Complete sidewalk gaps on both sides of the street, with a shared-use path to be added on south side between OR 99E and Main Street per project S53.	Included with project D8
Biking Solutions (see Figure 18)				
B1	7th Street Shared Roadway	OR 43 Bridge to Railroad Avenue	Add wayfinding and shared lane markings	Short-term
B2	Railroad Avenue-9th Street Shared Roadway	OR 99E to Main Street	Add wayfinding and shared lane markings	Short-term
B3	Main Street Shared Roadway	OR 99E to 15th Street	Add wayfinding and shared lane markings	Short-term
B5	12th Street (west of Washington Street) Shared Roadway	OR 99E to Washington Street	Add wayfinding and shared lane markings	Short-term
B6	15th Street (west of John Adams) Shared Roadway	Washington Street to John Adams Street	Add wayfinding and shared lane markings	Included with project D8
B12	Holcomb Boulevard (East of OR 213) Bike Lanes	Longview Way to UGB	Add bike lanes to both sides of the street	Medium-term
B29	Beavercreek Road Bike Lanes	Pebble Beach Drive to UGB	Add bike lanes to both sides of the street	Included with project D82
B32	Fir Street Bike Lanes	Molalla Avenue to 1,500 feet east	Add bike lanes to both sides of the street	Medium-term
B33	Leland Road Bike Lanes	Marysville Lane to Meyers Road	Add bike lanes to both sides of the street	Medium-term
B35	Meyers Road Bike Lanes	Leland Road to Autumn Lane	Add bike lanes to both sides of the street	Medium-term
B37	Molalla Avenue Bike Lanes	Gales Lane to Adrian Way	Complete bike lane gaps on both sides of the street	Included with project W73
B42	South End Road (south of Partlow) Bike Lanes	Buetel Road to UGB	Add bike lanes to both sides of the street	Included with project D89
B53	Holmes Lane Bike Lanes	Linn Avenue to Rilance Lane	Add bike lanes to both sides of the street	Medium-term
B55	Pearl Street Bike Lanes	Linn Avenue to Molalla Avenue	Add bike lanes to both sides of the street	Medium-term

Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
B60	Division Street Bike Lanes	7th Street to 18th Street	Add bike lanes to both sides of the street	Included with project D80
B65	14th Street Bike Lanes	OR 99E to John Adams Street	Add an eastbound bike lane and a westbound contra-flow bike lane	Included with project D7
B66	15th Street Bike Lanes	OR 99E to Washington Street	Add a westbound bike lane and an eastbound contra-flow bike lane, with a shared-use path to be added on south side of 15th Street between OR 99E and Main Street per project S53.	Included with project D8
Shared-Use Path Solutions (see Figure 19)				
S14	Maple Lane-Thayer Shared-Use Path	Maple Lane Road to Thayer Road	Add a shared-use path on the east side of the Holly Lane extension between Maple Lane and Thayer.	Long-term
S15	Thayer-Loder Shared-Use Path	Thayer Road to Loder Road	Add a shared-use path on the east side of the Holly Lane extension between Thayer and Loder.	Long-term
S18	Loder Road Shared-Use Path	Glen Oak Road to Holly Lane Extension	Add a shared-use path on the south/east side of the Loder Road extension between Glen Oak Road and the Holly Lane extension.	Long-term
S24	Gaffney Lane Elementary Shared-Use Path	Eastborne Drive to Falcon Drive	Add a shared-use path along the northern boundary of Gaffney Lane Elementary School between the Eastborne Drive path and Falcon Drive	Long-term
S36	Tumwater-4th Shared-Use Path	Tumwater Drive to 4th Avenue	Add a shared-use path through Old Canemah Park connecting 4th Avenue to the Tumwater/South 2nd intersection	Long-term
S53	15th Street Shared-Use Path	OR 99E to Main Street	Add a shared-use path on the south side of 15th Street between OR 99E and Main Street.	Included with project D8
Transit Solutions				
T1	Molalla Avenue Transit Signal Priority	Washington Street to Gaffney Lane	Provide priority at traffic signals for buses behind schedule. This includes the use and deployment of Opticom detectors at traffic signals and emitters on buses.	Short-term
T2	OR 99E Transit Signal Priority	Dunes Drive to 10th Street		Short-term
T3	Bus Stop Amenity Enhancement	Citywide	Add amenities at bus stops as needed, including bus shelters, landing pads, benches, trash/recycling receptacles and lighting	Short-term
Street Crossing Solutions (see Figure 19)				

Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
C11	Beavercreek Road/Loder Road Shared-Use Path Crossing	Beavercreek Road/Loder Road intersection	Install crosswalk and pedestrian activated flasher on Beavercreek Road	Long-term
C35	John Adams/7th Family Friendly Route Crossing	7th Street/John Adams Street intersection	Install crosswalk and pedestrian activated flasher on 7th Street	Long-term
Family-Friendly Routes (see Figure 17 or 18)				
FF13	Leland-Warner Parrot Family Friendly Route	Leland Road to Warner Parrot Road	Add sidewalks on both sides of the street. Add wayfinding, traffic calming and shared lane markings. Route via Hampton Drive, Atlanta Drive, Auburn Drive and Boynton Street. Includes Hampton Drive extension to Central Point Road	Long-term
FF19	Warner Parrot-Barker Family Friendly Route	Warner Parrot Road to Barker Avenue	Add sidewalks on both sides of the street. Add wayfinding and shared lane markings. Route via Woodlawn Avenue and Woodfield Court.	Long-term
FF20	Barker Avenue Family Friendly Route	South End Road to Telford Road	Add sidewalks on both sides of the street. Add wayfinding, traffic calming and shared lane markings. Route via Barker Avenue	Long-term
FF23	Charman Avenue Family Friendly Route	Telford Road to Linn Avenue	Add sidewalks and bike lanes on both sides of the street. Add wayfinding and traffic calming	Long-term
Citywide and Programmatic Improvements				
N/A	Family Friendly Routes	Citywide	Program to systematically implement the Neighborhood Greenway network on a yearly basis	N/A
N/A	Sidewalk Infill Program	Citywide	Capital program to systematically design and construct missing sidewalks along prioritized pedestrian routes. Provide sidewalks on local, residential streets that lead to roadways with transit service.	N/A
N/A	Develop Bicycle and Pedestrian Design Guidelines	Citywide	Develop bicycle and pedestrian design guidelines that establish preferred designs that represent best practices. Key treatments include pedestrian crossing design and bicycle accommodation at intersections (i.e. bike boxes, bicycle detection, etc.).	N/A
N/A	ADA/Curb Ramp Upgrade Program	Citywide	Upgrade curb ramps and eliminate gaps in ADA access along prioritized pedestrian routes near key destinations.	N/A
N/A	Pedestrian Wayfinding Signage	Citywide	Pedestrian wayfinding tools can include signs and walking	N/A

Table 6: Financially Constrained Transportation System

Project #	Project Description	Project Extent	Project Elements	Priority
			maps indicating walking routes to destinations and transit stops, as well as digital applications for smart phones.	
N/A	Bicycle Parking Program	Citywide	Implement bicycle rack design and placement standards; review development applications for compliance; coordinate with sidewalk installation by developments or in city projects.	N/A
N/A	Bike Lane Re-striping Schedule	Citywide	Develop a bike lane re-striping schedule.	N/A
N/A	Bicycle Wayfinding Signage	Citywide	Implement a bicycle wayfinding signage program to assist bicyclists in choosing comfortable routes and to help visiting bicyclists navigate through the city.	N/A
N/A	Stop Here For Pedestrians signage	Citywide	Add Stop Here For Pedestrians signage at existing and new crosswalks. State standards require installation of a stop line in advance of the crosswalk to use this sign.	N/A
N/A	Bicycle/Pedestrian Connections to Transit	Citywide	Coordinate infrastructure upgrades near transit stops and park and rides to improve access and amenities targeted at increasing ridership.	N/A
N/A	Repaving policy	Citywide	Ensure repaving projects extend the full width of the road, including the full shoulder or bike lane.	N/A
N/A	Streetscape Enhancements	Citywide	Develop projects to create a pedestrian buffer zone on key pedestrian routes, including those that provide access to transit. Streets that would benefit from a buffer zone include Molalla Ave and Warner Milne Rd.	N/A
N/A	Safe Routes to Schools Curriculum	Citywide	Leverage ODOT Safe Routes Program with local investment to bring Safe Routes curriculum to all area K-8 schools.	N/A

Planned Transportation System

The projects and actions outlined within the Financially Constrained System will significantly improve Oregon City's transportation system. If the City is able to implement a majority of the Financially Constrained System, nearly two decades from now Oregon City residents will have access to a safer, more balanced multimodal transportation network.

The Planned Transportation System identifies those transportation solutions that are not reasonably expected to be funded by 2035, but many of which are critically important to the transportation system. Some of the projects will require funding and resources beyond what is available in the time frame of this plan. Others are contingent upon redevelopment that makes it possible to create currently missing infrastructure, such as street connections.

The Planned Transportation System solutions are illustrated in Figures 14 to 19 and summarized in the TSP Volume 2, Section I. The projects numbered on Figures 14 to 19 correspond with the project numbers in Section I of the TSP Volume 2. The project numbers are denoted as follows:

- Driving ("D")
- Walking ("W")
- Biking ("B")
- Shared-use path ("S")
- Transit ("T")
- Street crossing ("C")
- Family-Friendly route ("FF")

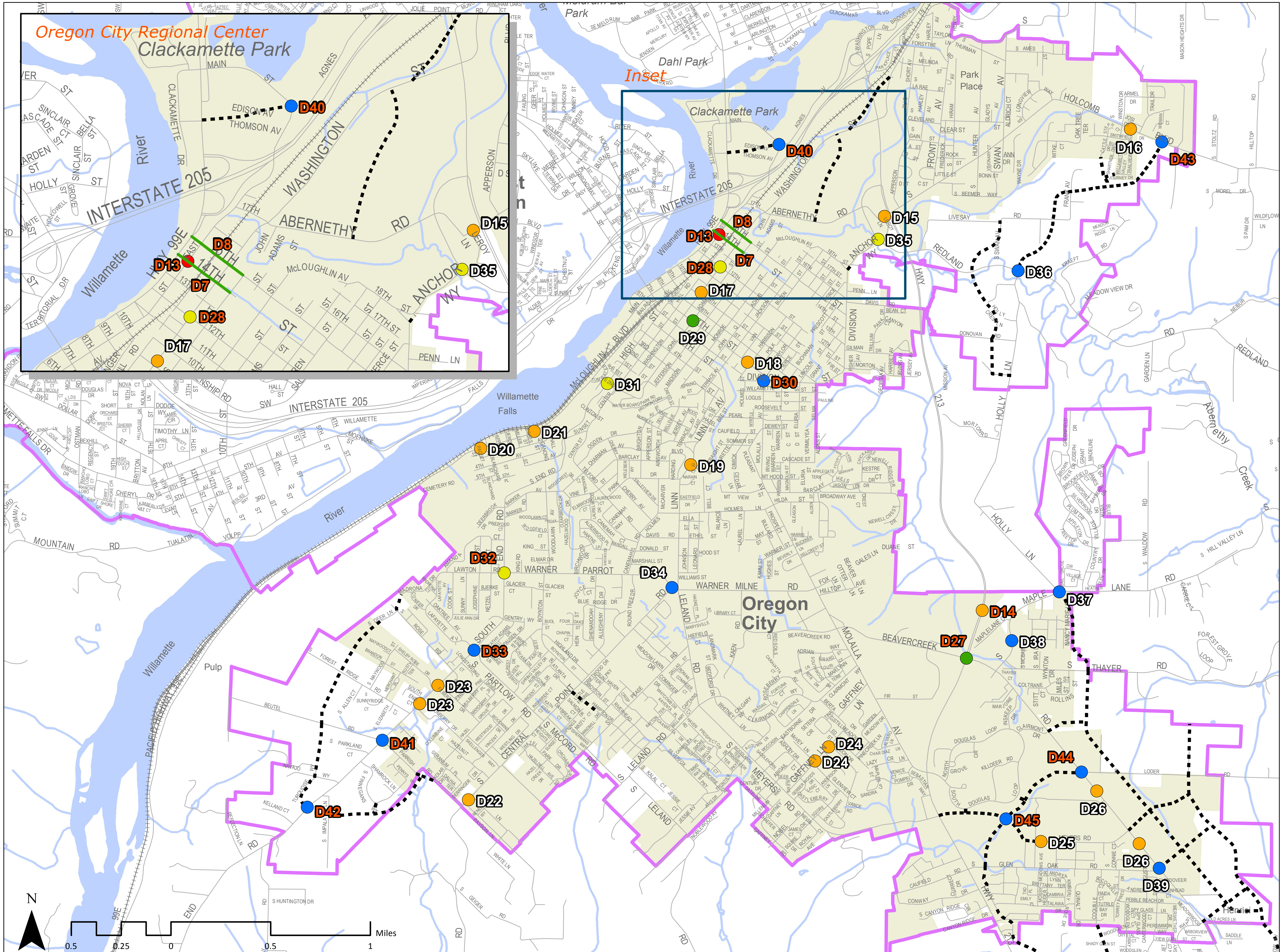
The Planned Transportation System includes about $148 million worth of investments. Planning level cost estimates for the projects can be found in Table A1 of the TSP Volume 2, Section I.

Transportation solutions within the Planned Transportation System were recommended within several different priority/time horizons:

- Long-term Phase 2: Projects with the highest priority for implementation beyond the projects included in the Financially Constrained Transportation System, should additional funding become available.
- Long-term Phase 3: Projects with the next highest priority for implementation beyond the projects included in the Financially Constrained Transportation System, should additional funding become available.
- Long-term Phase 4: The last phase of projects to be implemented, should additional funding become available.

The Planned Transportation System includes about $148 million worth of investments.

Detailed descriptions for investments included in the Planned Transportation System can be found in Section I of the TSP Volume 2



OREGON CITY TRANSPORTATION PLAN

FIGURE 14

Planned Intersection and Street Management Solutions

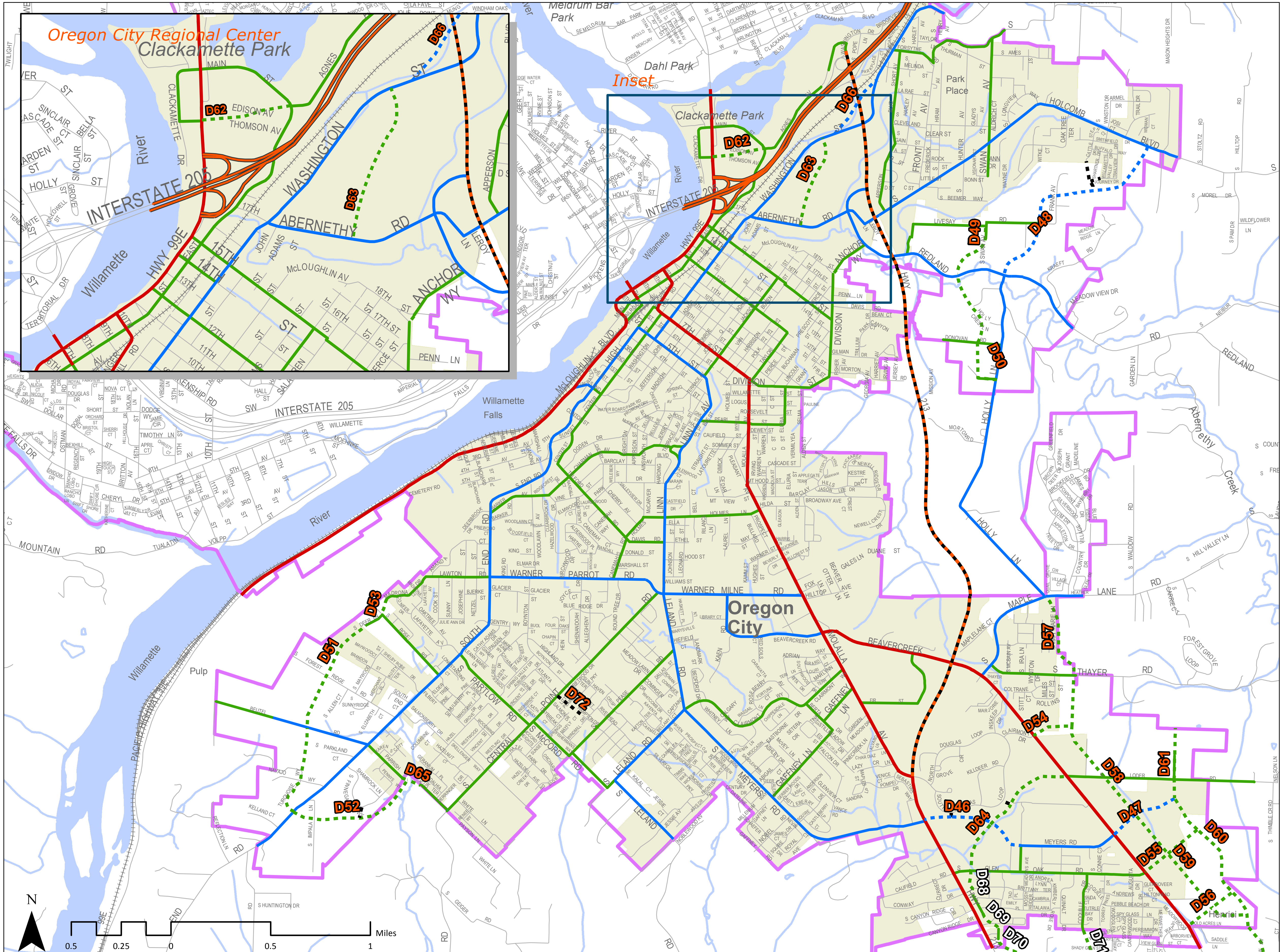
Legend

Planned Intersection Management Solutions

- Planned Traffic Signal
- Planned All-way Stop Control
- Planned Roundabout
- Planned Turn Lane
- Planned Transportation System Management and Operations (TSMO)

Planned Street Management Solutions

- Planned Street Restriping
- # Financially Constrained System Project # (See Table 6)
- # Planned Transportation System Project # (See Section I of the TSP Volume 2)
- Planned Street Extension (Conceptual Alignment)
- Railroad
- City Limit
- Urban Growth Boundary



OREGON CITY TRANSPORTATION PLAN

FIGURE 15

Planned Street Extensions

Legend

Existing Functional Classification

- Freeway
- Expressway
- Major Arterial
- Minor Arterial
- Collector
- Local Roadway

Planned Street Extensions (Conceptual Alignment)

- Planned Minor Arterial
- Planned Collector
- Planned Local Street

- # Financially Constrained System Project # (See Table 6)
- # Planned Transportation System Project # (See Section I of the TSP Volume 2)

- Railroad
- City Limit
- Urban Growth Boundary

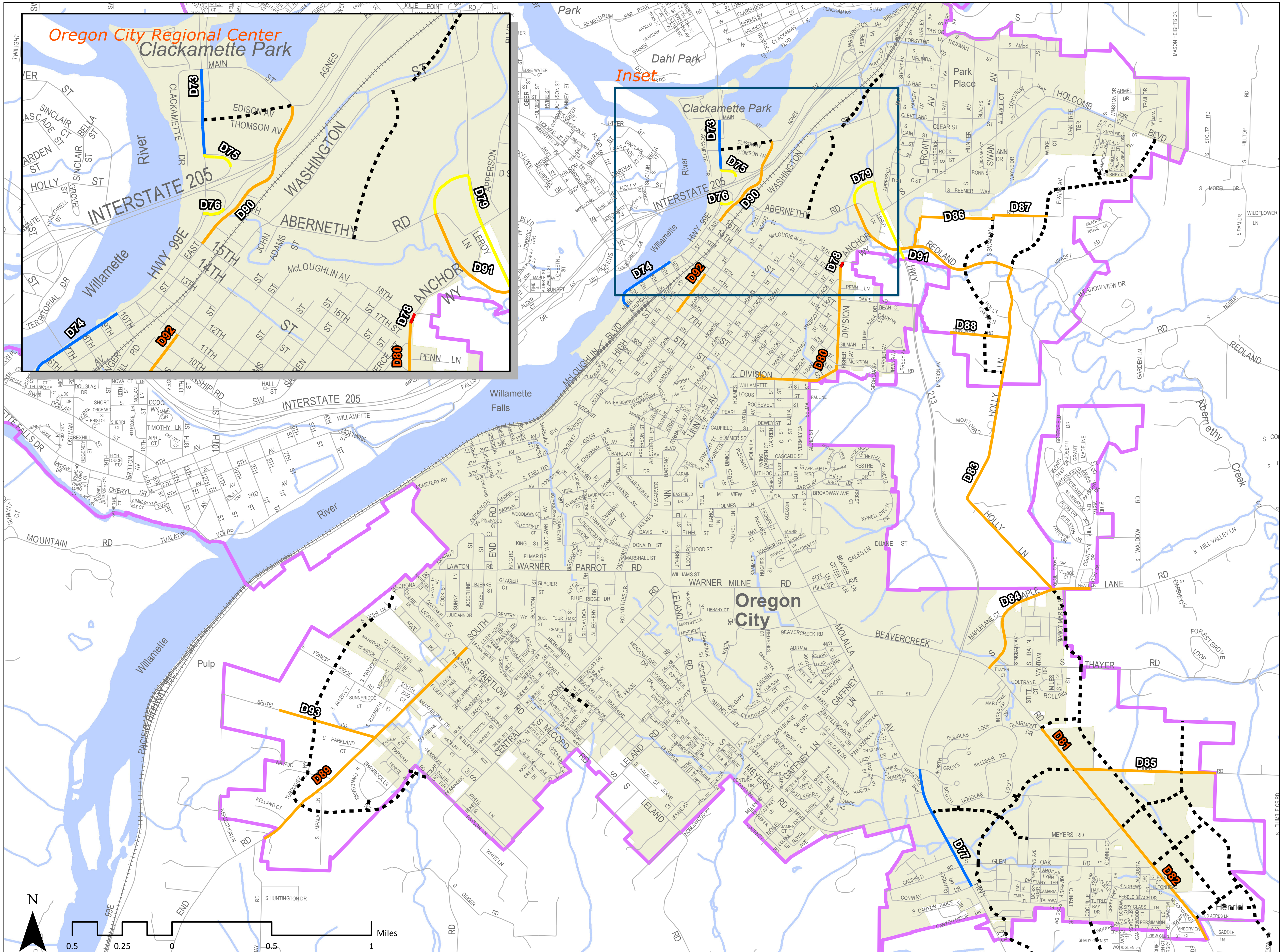


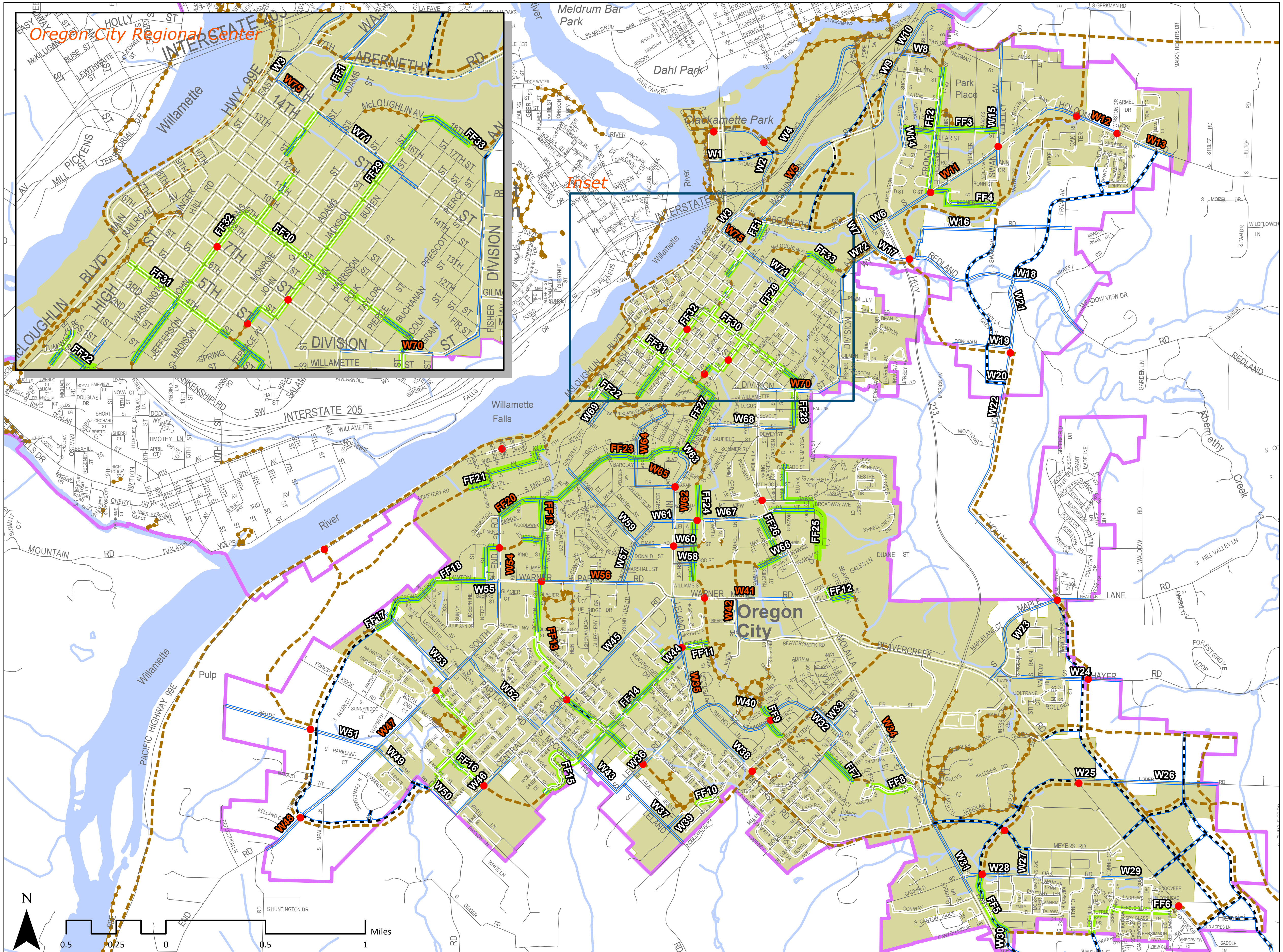
FIGURE 16

Planned Street and Intersection Expansions

Legend

Planned Street and Intersection Expansion Solutions

- Planned Intersection Widening
- Planned Street Widening
- Planned Street Realignment
- Planned Street Upgrade
- Financially Constrained System Project # (See Table 6)
- Planned Transportation System Project # (See Section I of the TSP Volume 2)
- Planned Street Extension (Conceptual Alignment)
- Railroad
- City Limit
- Urban Growth Boundary



OREGON CITY TRANSPORTATION PLAN

FIGURE 17

Walking Solutions

Legend

Existing Streets

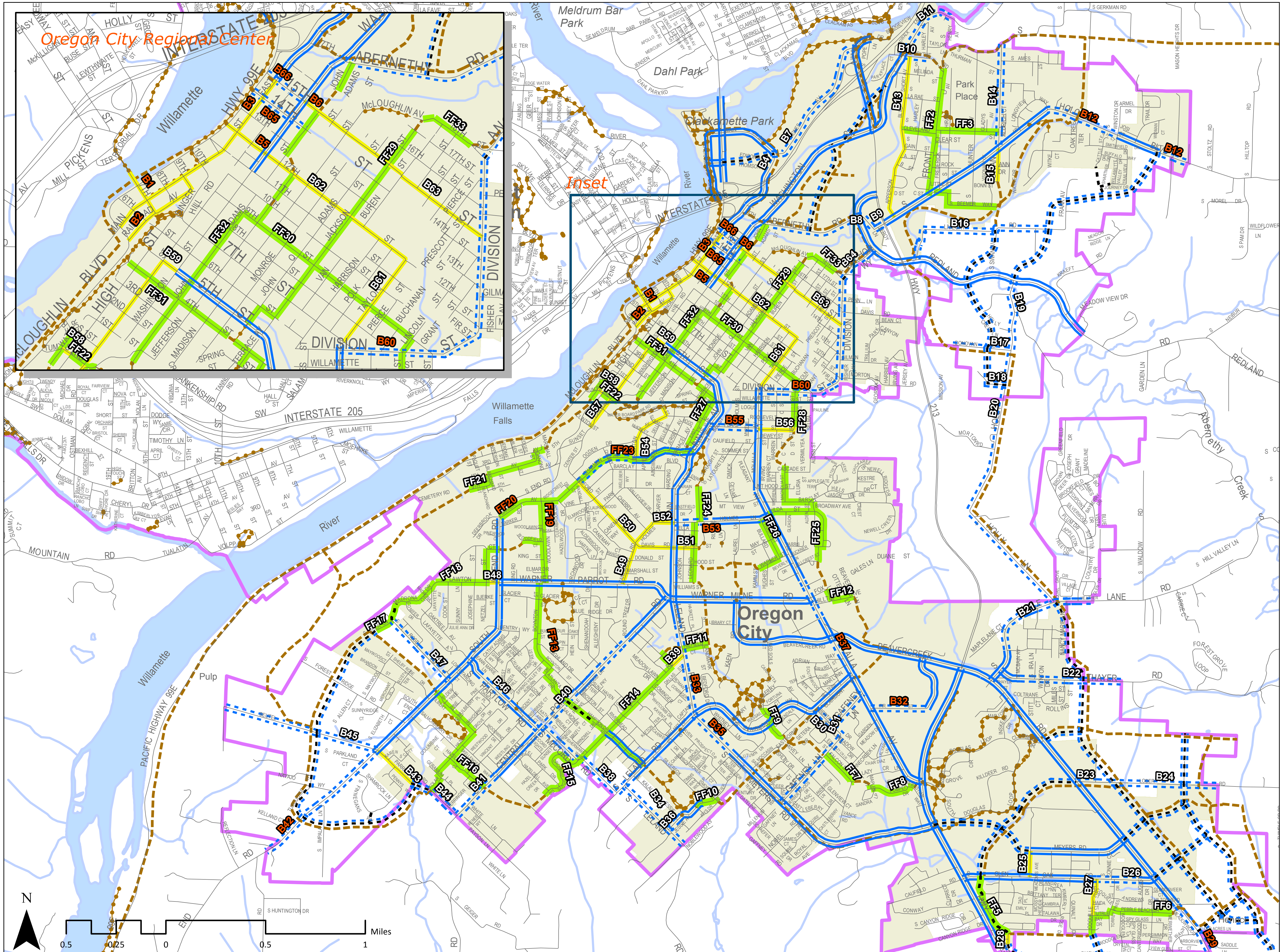
- Existing Sidewalk
- Planned Sidewalk Infill- One Side of Street
- Planned Sidewalk Infill- Both Sides of Street

Planned Street Extensions (Conceptual Alignments)

- Planned Street Extension
- Planned Street Extension with Sidewalk on one Side
- Planned Street Extension with Sidewalks on both Sides
- Financially Constrained System Project # (See Table 6)
- Planned Transportation System Project # (See Section I of the TSP Volume 2)

Shared Walking and Biking Improvements (See Figure 19)

- Planned Family Friendly Route
- Street Crossing Improvement
- Planned Shared-Use Path (Conceptual Alignment)
- Existing Shared-Use Path
- City Limit
- Urban Growth Boundary



OREGON CITY TRANSPORTATION PLAN

FIGURE 18

Biking Solutions

Legend

Existing Streets

- Existing Bike Lanes
- Planned Bike Lane- One Side of Street
- Planned Bike Lanes- Both Sides of Street
- Planned Shared Roadway

Planned Street Extensions (Conceptual Alignments)

- Planned Street Extension
- Planned Street Extension with Bike Lane on one Side
- Planned Street Extension with Bike Lanes on both Sides
- Financially Constrained System Project # (See Table 6)
- Planned Transportation System Project # (See Section I of the TSP Volume 2)

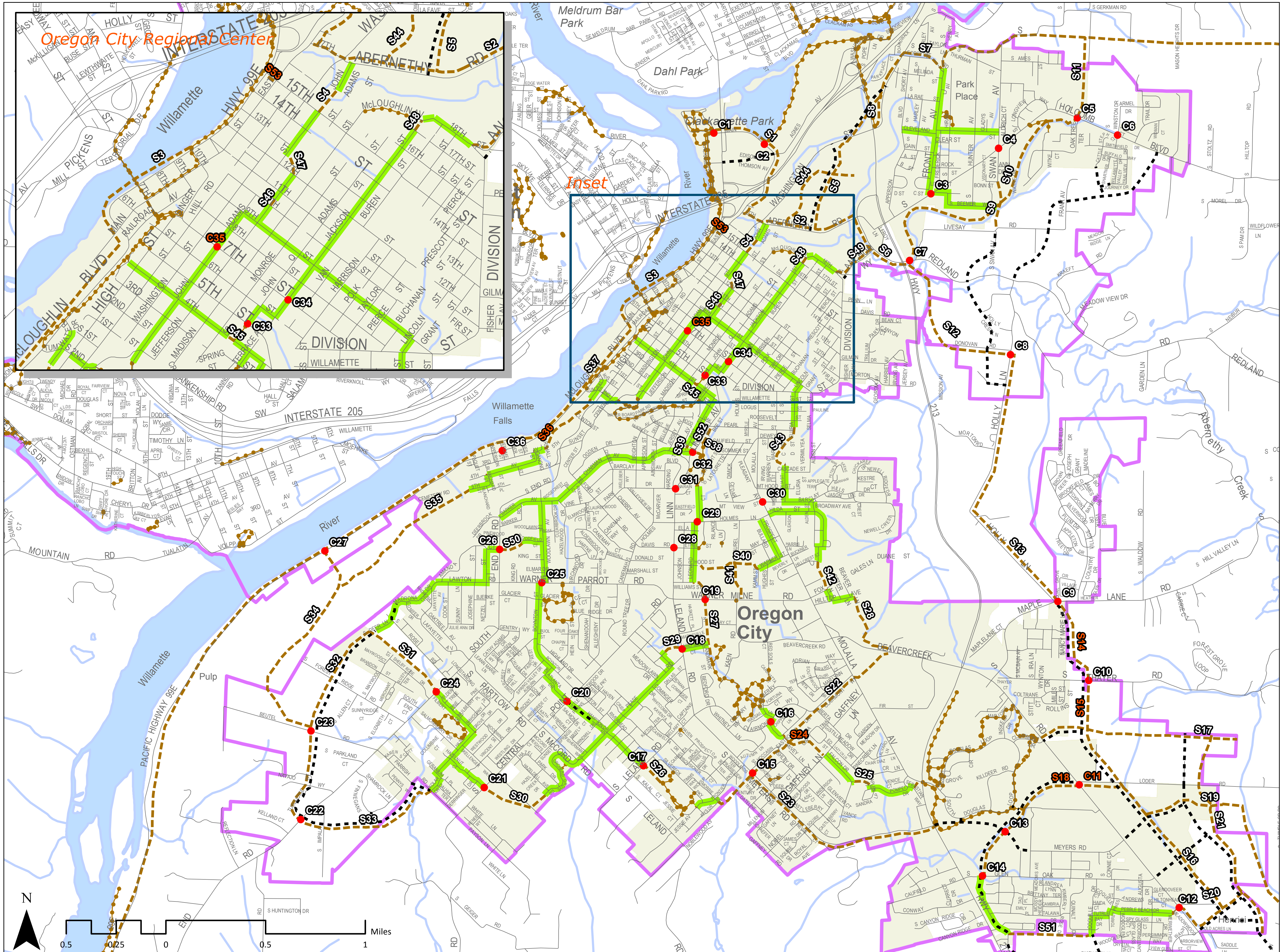
Shared Walking and Biking Improvements (See Figure 19)

- Planned Family Friendly Route
- Street Crossing Improvement
- Planned Shared-Use Path (Conceptual)
- Existing Shared-Use Path
- City Limit
- Urban Growth Boundary

OREGON CITY TRANSPORTATION PLAN

FIGURE 19

Shared Walking and Biking Solutions



Legend

Shared Walking and Biking Improvements

- Planned Family Friendly Route
- Street Crossing Improvement

Shared-Use Paths

- Existing Shared-Use Path
- Planned Shared-Use Path (Conceptual)

- Financially Constrained System Project # (See Table 6)
- Planned Transportation System Project # (See Section I of the TSP Volume 2)

- Planned Street Extension (Conceptual Alignment)
- City Limit
- Urban Growth Boundary

Section 8

THE OUTCOME

the outcome

The Oregon City TSP employed a performance based approach, focusing on measurable outcomes of investments to the transportation system. The approach allows the City to measure the degree to which its investments support regional and City-wide priorities. In this manner, the City is able to track how its investment decisions impact a set of performance objectives through 2035. While the performance objectives do not represent the complete picture, they do offer a baseline against which to assess how the policies, investments and planning decisions made in this plan may affect the future.

Tracking Performance of Transportation System Investments

Oregon City developed measures for safety, congestion, freight reliability, walking, biking, transit and non-single occupant vehicle (SOV), and climate change to help translate investment decisions to the community priorities of the TSP update. The performance measures included the following:

Safety

- Reduce fatalities and serious injuries by 50% from 2010 for drivers, walkers and bikers

Congestion

- Reduce vehicle hours of delay per person by 10% from 2010.
- Work towards meeting mobility targets for streets and intersections[2]

[2] The Metro Regional Transportation Functional Plan includes Mid-day and PM peak mobility standards in the Regional Mobility Policy, Table 3.08-2

Freight Reliability

- Reduce vehicle hours of delay for truck trips by 10% from 2010.

Walking, Biking, Transit and Non-SOV

- Work toward achieving the non-SOV mode share targets of 45 to 55 percent for the Oregon City Regional Center and the 7th Street-Molalla Avenue Corridor and 40 to 45 percent for other areas of the City.
- Triple walking, biking and transit mode share from 2010.

Climate Change

- Reduce vehicle miles traveled (VMT) per capita by 10 percent compared to 2010

Putting the Plan to the Test

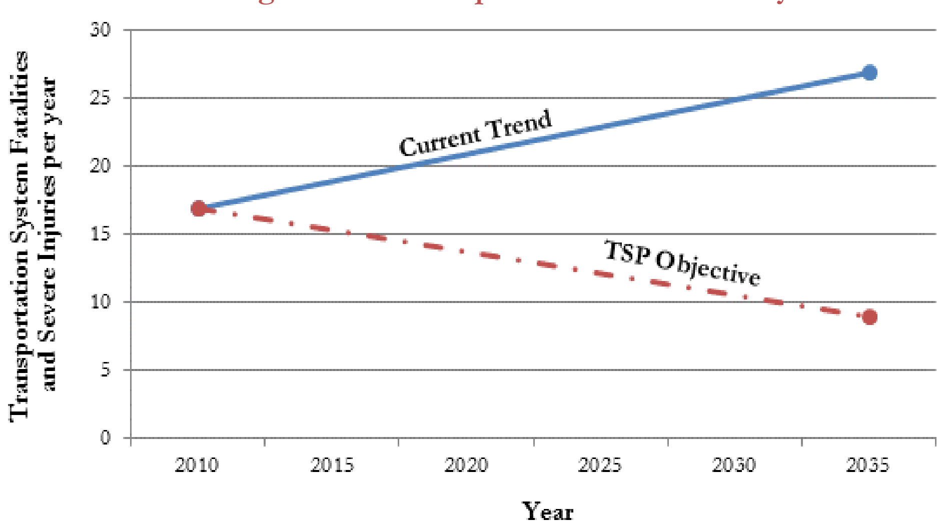
So how will investment decisions of the TSP, an estimated $221 million worth, improve the performance of the transportation network in Oregon City? To answer this question, the plan's investment decisions were evaluated against the performance measures to identify long-term trends through 2035. The results are presented in the following sections.

Safety is expected to improve despite the Current Trend

The future trend for total fatalities and severe injuries resulting from collisions along the transportation system in Oregon City is expected to move in the right direction despite what recent collision data suggests.[3] Although we are unable to forecast future collisions along the transportation system, with investments in improved street crossings, walking and biking facilities, and to high collision locations and congested intersections, the trend is expected to be more in line with the safety objective of the TSP (reducing fatalities and serious injuries by 50% from 2010).

Overall, there were two fatalities and 15 severe injuries in 2010. Pedestrians were involved in eight collisions, with two pedestrians sustaining severe injuries. While there were nine collisions involving a bicyclist in 2010, none of the cyclists sustained severe injuries. By 2035, Oregon City hopes to limit total fatalities and severe injuries to less than 10 in a year.

Figure 20: The Expected Trend for Safety



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[3] The current trend was developed based on collision data between 2005 and 2010

Progress is expected to be made towards meeting the Congestion Targets

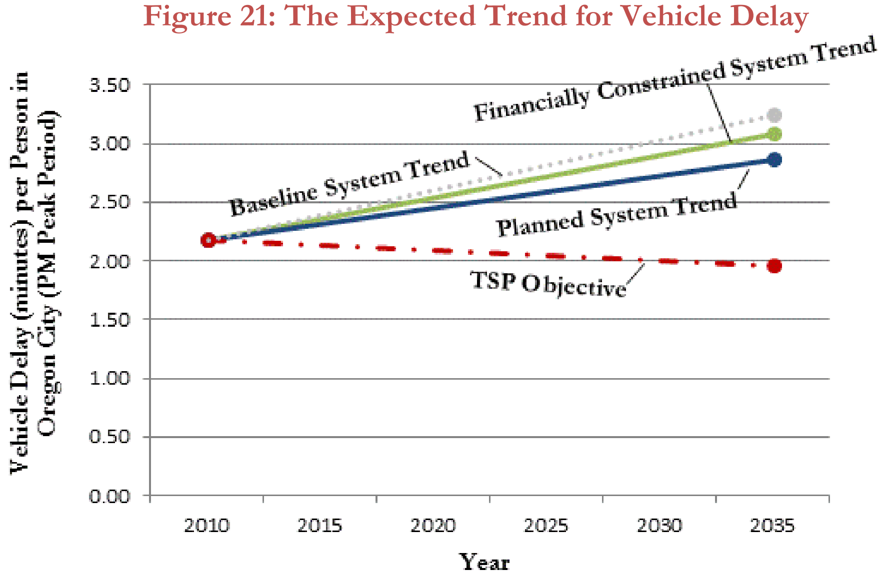
To reduce congestion, Oregon City identified over $161 million worth of projects to improve driving, and approximately $60 million to enhance walking, biking and transit usage.

Vehicle hours of Delay[4]: The same dynamics that make Oregon City an attractive place to live and open a business- its access to major regional transportation routes including I-205, OR 213, OR 99E, and OR 43- poses a challenge for meeting this performance measure. The TSP objective envisions decreasing delay by approximately ten percent through 2035, to fewer than two minutes per person during the evening peak period. However, the future trend for delay along Oregon City streets during the evening peak period (after assuming the planned system investments) is expected to increase slightly through 2035, from about two minutes to just under three minutes per person. This is generally associated with increased delay along the regional routes (such as OR 99E and OR 213), a side effect of local and regional population and employment growth. Since these routes serve outlying communities such as Molalla and Canby, through trips (or drivers that have origins and destinations outside of Oregon City) would be expected to significantly contribute to the increased delay in Oregon City.

With delay trending away from the TSP objective even after nearly $221 million worth of transportation system investments, the limitations of relying on infrastructure improvements as a means of meeting this objective are evident as the benefits are difficult to assess.

However, the City is working towards meeting this objective by decreasing delay nearly 15 percent from what would be expected without the $221 million worth of transportation system investments (see the Baseline System Trend).

Figure 21: The Expected Trend for Vehicle Delay



[4] Delay is defined as the amount of time spent in congestion greater than 0.90 v/c, page 5-7, 2035 Metro RTP

Mobility Targets for Streets: Metro's regional travel demand model was used to estimate if streets in Oregon City could handle the increased travel demand through 2035 assuming the TSP investments.[5] While transportation system investments were recommended throughout the City, financially feasible solutions could not be identified for the routes connecting Oregon City across the Willamette and Clackamas Rivers. These routes, including the Oregon City-West Linn Arch Bridge, OR 99E and I-205, are expected to be congested by 2035 (operating above a v/c of 1.00), and will likely meter traffic coming into the City during peak hours. Once demand exceeds the available capacity along these routes, drivers will be forced to adjust their travel to directly before or after the evening peak hour. Therefore, the evening peak hour congestion that Metro's regional travel demand model is forecasting throughout the Oregon City Regional Center and along routes connecting to it, including OR 99E, OR 213, South End Road, Singer Hill Road and Redland Road, is not expected since the travel demand across the rivers will be spread over more than one hour. Even with the excess travel demand across the rivers, all remaining streets in the City (beyond those mentioned above) are forecasted to comply with the Metro Regional Transportation Functional Plan mobility targets during the evening peak period. Overall, the street system investments in the TSP are expected to help the City work towards meeting mobility targets during the evening peak period.

During the midday peak hour[6], all streets in Oregon City are expected to comply with the mobility targets of the Metro Regional Transportation Functional Plan, with the exception of the routes connecting Oregon City across the Willamette River, including the southbound direction of the Oregon City-West Linn Arch Bridge and portions of I-205.

Mobility Targets at Intersections: 2035 intersection operations assuming the transportation system investments (Financially Constrained and Planned Systems) are shown in Table A1 in TSP Volume 2, Section J. With over $161 million worth of improvements to the street system, nearly all intersections reviewed are expected to meet mobility targets through 2035 during the evening peak period. Despite the investments in the transportation system, three of the intersections reviewed are still expected to be substandard by 2035 during the evening peak period (see Section J of the TSP Volume 2 for more detail), including the OR 99E/I-205 SB Ramps, OR 99E/I-205 NB Ramps and OR 213/Beavercreek Road intersections.

With the recommended improvements to the OR 99E/I-205 SB Ramp and OR 99E/I-205 NB Ramp intersections, compliance with the mainline mobility target (v/c of 1.10) is expected; however, the intersections would still be expected to operate above the freeway ramp terminal mobility target (v/c of 0.85). The investment decisions of the TSP allow these intersections to work towards meeting mobility targets and reduce the vehicle spillback onto the off-ramps from I-205 during the evening peak period,

[5] The raw model v/c plots for the mid-day and evening peak periods were reviewed as a qualitative assessment for this objective but detailed link capacity analysis was not performed.

[6] Metro's regional travel demand model was reviewed with RTP investments only during the midday peak period. Not all improvements from the Oregon City TSP were included, however, they will likely not impact travel patterns during the midday period due to limited congestion.

meeting the congestion objective of the TSP.

In addition, several projects have been previously planned that would reduce congestion at the OR 213/Beavercreek Road intersection. A planned project to replace the OR 213/Beavercreek Road intersection with an interchange was eliminated due to livability, multi-modal access and funding constraints within the 2035 planning horizon. The project should be reconsidered beyond the planning horizon since the intersection is expected to operate above the mobility target by 2035. Since the area surrounding the interchange could be developed before the planning horizon, ODOT should continue to obtain right-of-way in anticipation of a potential future need. The investment decisions of the TSP allow this intersection to work towards meeting mobility targets, satisfying the congestion objective of the TSP.

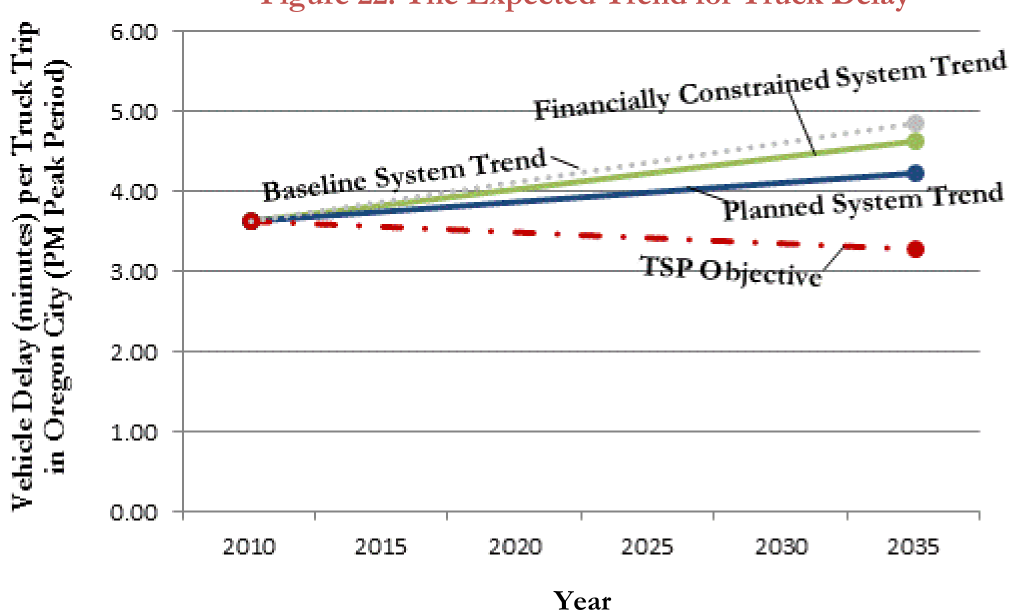
Progress is expected to be made towards reducing Freight Delay

Oregon City's access to major regional transportation routes including I-205, OR 213, OR 99E, and OR 43- again pose a challenge for meeting this performance measure (similar to the vehicle hours of delay measure). The TSP objective envisions decreasing delay by approximately ten percent through 2035, to just over three minutes per truck trip during the evening peak period. However, the future trend for truck delay in Oregon City during the evening peak period (after assuming the planned system investments) is expected to increase slightly through 2035, from about three and a half minutes to four minutes per person. This is generally associated with increased delay along the regional routes, since most trucks trips will occur on these routes. Since these routes serve outlying communities such as Molalla and Canby, through trips (or drivers that have origins and destinations outside of Oregon City) would be expected to significantly contribute to the increased truck delay in Oregon City. However, the City is working towards meeting this objective by decreasing truck delay 15 percent from what would be expected without the $221 million worth of transportation system investments (see the Baseline System Trend).

A Reduction in Single Occupant Vehicle Travel is expected

The future trend for non-single occupant vehicle (SOV) travel in Oregon City is expected to continue to increase through 2035.

Figure 22: The Expected Trend for Truck Delay



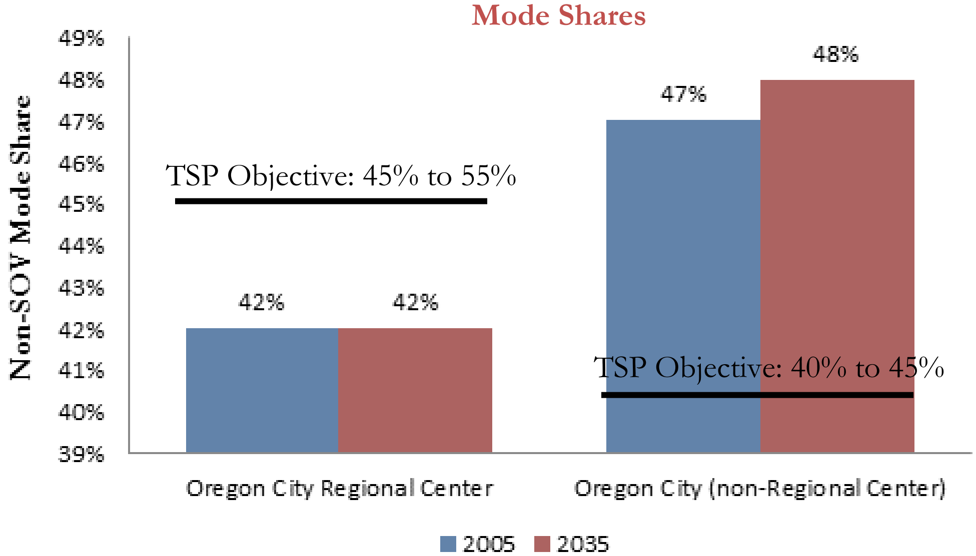
Non-Single Occupancy Vehicle (SOV) Travel: Metro's regional travel demand model was used to evaluate progress towards meeting transportation demand management (TDM) goals, specifically reducing reliance on the single occupancy vehicle.[7] Oregon City's non-SOV mode shares (outside of the Oregon City Regional Center) are expected to be above the TSP objective of 40 to 45 percent, with an estimated non-SOV mode share of 47 percent in 2005 and 48 percent in 2035. The non-SOV mode share in the Oregon City Regional Center is expected to remain steady through 2035, at around 42 percent, slightly below the TSP objective of 45 to 50 percent.

The TSP update makes investment decisions that further help the City work towards achieving the non-SOV mode share targets. The City is expected to continue to increase trip share via walking, biking, carpooling or public transportation with investment decisions including a planned project that would help implement a Transportation Management Association (TMA) program with employers and residents within the Oregon City Regional Center.

The Oregon City TSP also recommended solutions to decrease single occupancy vehicle travel by focusing on investments that encourage multi-modal travel, including increased walking and bicycling facilities and transit stop access and amenity improvements.

The TSP also recommended maximum public street spacing standards and maximum spacing between pedestrian crossings. Street connections to increase the convenience of walking and bicycling were also recommended throughout the City, including the Oregon City Regional Center.

Figure 23: Oregon City Non-Single Occupant Vehicle Mode Shares

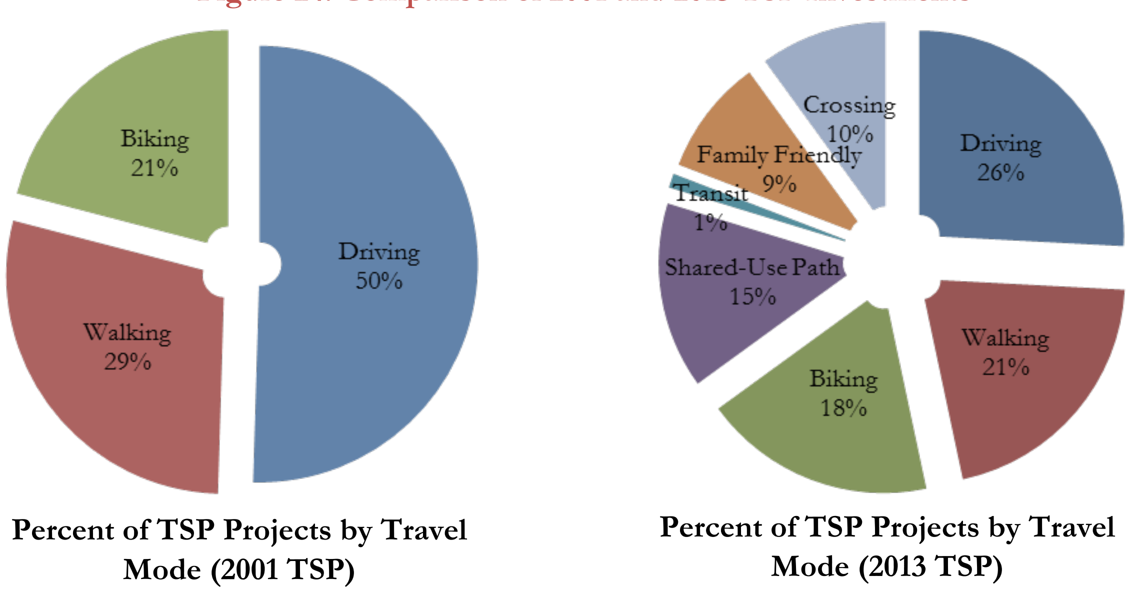


[7] The Metro RTP Financially Constrained Plan was utilized for the non-SOV mode share analysis; therefore, not all of the projects included in the TSP were captured in the analysis.

Walking, Biking and Transit Mode Share: Oregon City has identified nearly $60 million worth of investments with over 260 walking, biking, transit or other shared-use path projects in its TSP. This accounts for over 75 percent of the projects in the 2013 TSP and represents an increase of more than 25 percent when compared to the projects in the 2001 TSP. While no data is available to assess the impact of these walking, biking and transit investments in the City, they are expected to help the City work towards the TSP objective of tripling the walking, biking and transit mode share between 2010 and 2035.

The City not only identified investments to complete walking and biking gaps along the major street system, it went one step further in identifying a network of low-volume more comfortable walking and biking routes off the major street system to further encourage walking and biking to key destinations throughout the City.

Figure 24: Comparison of 2001 and 2013 TSP Investments



The Plan is expected to outperform the Climate Change Target

Despite healthy local and regional population and employment growth, vehicle miles traveled in Oregon City is expected to outperform the TSP objective through 2035. The TSP objective envisions decreasing vehicle miles traveled by approximately ten percent through 2035, to about 2.6 miles per person during the evening peak period. However, the future trend for vehicle miles traveled in Oregon City during the evening peak period (after assuming the planned system investments) is expected to decrease nearly 13 percent through 2035, from about 3 miles to 2.5 miles per person. This is likely representative of job growth in Oregon City, as more residents have the option to work closer to home. In addition, the $60 million worth of investments in over 260 walking, biking, transit or other shared-use path projects in the 2013 TSP help reduce the need to drive for local trips in the City.

Figure 25: The Expected Trend for Vehicle Miles Traveled